

Green Growth and the Modern Economy

Developing an Ecologically Prudent Economic Growth
within the Modern Economic System

[Ellen Elisabeth Tveiten-Grotbæk]



A Thesis Presented to
The Department of Literature, Area Studies and European Languages
In Partial Fulfillment of the Requirements for the MA Degree

UNIVERSITY OF OSLO

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Don't it always seem to go
that you don't know what you've got till it's gone
They paved paradise and put up a parking lot

☆ Joni Mitchell

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”Ecological Awareness and Economic Growth – the American Renewable Energy Industry as a Road to an Ecologically Prudent Economic Growth”

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Abstract

This study aims at substantiating the hypothesis that the renewable energy industry (REI) is becoming a significant factor for economic growth in the United States. The study also assesses various aspects of the relationship between economic growth and ecological degradation, and looks at different ways that the economic system can adapt to the needs of the natural environment in order to make growth sustainable. It further evaluates the usefulness of three different approaches; limiting growth, piecemeal fixes to damaging economic practices, and removal of the connection between environmental degradation and economic growth, and evaluate whether these measures, despite their good prospects, might still have unwanted consequences to the natural environment. The “great unasked question”¹ in the debate pertaining to the environmental crisis, namely the issue of consumption, is also addressed. I look at the various ways of limiting consumption and assess their potential for success based on the pathological instincts that make consumption more than just the act of buying things.

Green products and green technologies are offering ways to remove the connection between environmental degradation and economic growth, but are these items really environmentally benign? This question is a red thread throughout the thesis, and is also applied to my case study from Iowa. Iowa has over the past decade become a national leader in renewable energy, ranking among the top three producers of wind generated power, and the state is also home to a substantial biofuels industry. This development is the result of strategic planning from the state government, and makes it a valid assumption to think that the Iowa economy is becoming more ecologically benign. However, Harvey Molotch’s *growth machine theory* suggests that government is in fact controlled by local growth coalitions which sole aim is economic growth. The coalitions’ relentless pursuit for economic growth makes environmental concerns secondary. I therefore draw up five criteria for what an ecologically prudent economic growth model would look like, and look for traces for how the growth machine in Iowa is undermining the realization of this model, while also looking for signs that the Iowa economy could be moving in the direction of an ecologically sound economy.

¹ (Guha, How Much Should a Person Consume 2006, 123)

Chapter 1. Introduction

The topic for this thesis emerged as a result of my own mixed feelings towards “green technology” as a means to check the pending climate change. On the one hand I welcomed these innovations; time is pressing and people slow to change. On the other hand I cannot help but object to the contempocentrism and anthropocentrism that hallmark modern society. In order to gather a deeper understanding of the mechanisms that steer the direction of economic growth and environmental policies I therefore chose to evaluate the different options that exist; from small changes that can make economic growth more benign, to theories that suggest a complete systemic restructuring.

The state of Iowa presented itself as a great case to study what seemed to be a green economy in the making. Iowa has over the past decade become a national leader in renewable energy, ranking among the top three producers of wind generated power, and the state is also home to a substantial biofuels industry. This development is the result of strategic planning from the state government, and makes it a valid assumption to think that the Iowa economy is becoming more ecologically benign. And as my case study from shows, wind power technology has provided a successful way to extract renewable energy at minimal cost to the environment. At the same time the study shows that Iowan production of biofuels is partly the cause of an increasing dead-zone in the Gulf of Mexico. Ideas of green consumption and green technology are therefore double edged swords that need to be applied with caution.

1.1. Organization of the Thesis

The remaining parts of the study are organized as follows:

Chapter 2 introduces the hypothesis and the central questions of the study. It also includes the main literature pertaining to economic growth and ecological degradation. In addition it presents Harvey Molotch's *growth machine theory* which is used as the basis for my case study from the state of Iowa. Finally this chapter lies out and analyzes the methodological approach used in the study.

Chapter 3 offers a brief account of the study of the relationship between environmentalism and economic growth since the 1960, before it moves on to analyzing the causes and effects of economic growth and environmental degradation. This discussion is divided into three overarching segments: number one looks at various ways that economic growth can prevent or mend the damages it has been causing the environment. The second part addresses governmental and corporate responsibilities on the road to a green economy, and the last part addresses an issue that is complicating the attempts to move towards an ecologically benign economic growth, namely the question of consumption.

Chapter 4 presents the case study from Iowa. The chapter addresses the failure of the federal government to develop an ecologically sound economy, and the local and private initiatives that have come as a result of the lacking interest from the central government. I then give a brief account of the Iowan economy through factors that affect the decisions of the growth machine. The chapter then goes on and presents the taxonomy of the growth machine and how it is working in Iowa. Based on the previous analyses in my study, as well as the assumptions of growth machine theory, I identify criteria that will make the basis for what I choose to call the *ecological prudent growth model (EPG)*. Returning to the study of Iowa I then assess how the growth machine is undermining the realization of the EPG, and also look for signs for a beginning movement towards ecologically sound economic growth.

Chapter 6 presents the main findings and concludes the thesis.

Chapter 2. Methodology and Theoretical Foundations

2.1. Thesis Topic and Hypothesis

The topic for this thesis is the modern economic system and how it stands in relationship to the pending environmental crisis. The first part of the study focuses on how this relationship will or should develop, while in the latter part of the study I analyze the development of the renewable industry sector in Iowa to see if it is bringing about an ecologically prudent economic growth.

The general hypothesis under scrutiny is that the renewable energy industry (REI) is becoming a significant factor for economic growth in the United States. On the background of this assessment I ask the following question: is the increased market share of biofuels, wind energy and other green products making the economy green? Several theories suggest that the problematic relationship between economic growth and the natural environment can and will be eliminated by the workings of market mechanisms, and by the nature of green products it is a reasonable assumption to think that they confirm these hypotheses.² However, other studies have made the opposite conclusion; that green products are only fueling consumption that *appears* to be green, but really is not.

If the latter category of scholars is right; what changes are required for the modern economic system to arrive at an ecologically benign growth regime? To address this question I have chosen to focus on the possible directions that the modern economic system can move to become ecologically benign. Economic growth is by many seen as the main perpetrator behind the environmental crisis, but is that to say that a limitation of growth necessarily will result in a sounder environment? Or are the technologies that are generated by economic growth able to fix the problems they are causing? A third option is also available; and I ask if and how it is possible to remove the connection between the ecology and the economy? The answer to these questions provide a background of the social, political and corporate conditions that shape the connection between economic growth and ecological damage, which again can indicate whether it is possible for a new economic model to replace the most prevalent feature of the modern economic system, namely the growth imperative.

² (Solow 1956)(Pilzer, Unlimited Wealth 1994)

To test my thesis I look at the renewable energy industries in Iowa which have expanded drastically over the past years, today being among the nation's leaders in these sectors. Prior studies have indicated that coalitions of local elites and local government, termed *growth machine* by Harvey Molotch, effectively stand in the way for attempts to green the economy, because the sole aim of these coalitions is to generate economic growth, making the environment a secondary concern. However, if Molotch's evaluation is correct, then a green accumulation base, represented in Iowa by the renewable energy industry, would eliminate this problem of the relationship between the growth coalition and the ecology. And if this is the case, can we say that the modern economy has is adopting an ecologically prudent growth model that replaces the power of the growth machine? Or has the renewable energy been integrated to fit the growth imperative the way Molotch warns about, so that the economy will only remain ecologically sound if it makes economic sense for the growth coalitions?

2.1.1. Literature Review

The literature on the effects of economic growth on environmental degradation includes academic articles, reports and policy recommendations. The literature mainly provides theoretical and philosophical solutions to this dilemma and I therefore choose to structure this section as follows: First I present an overview of the main findings on the connection between economic growth and the ecological crisis, and how the relationship between these two can best be herded. Secondly, and based on these findings, I review the literature in order to develop the main question of this thesis.

2.1.1.1. Ecology and Economy – Three Perspectives and a Complicating Factor

Literature addressing the relationship between economic growth and ecological degradation is roughly divided into three different schools of thought. The first group is hallmarked by its faith in progress and technology's ability to fix any negatives it is causing. These theories in general follow Robert Solow's exogenous growth model³ which shows that technological innovation provides ways of circumventing resource scarcity.⁴ The models are based on neoclassical assumptions of the market as a self

³ The model is also referred to as the *neoclassical growth model* or the *Solow-Swan growth model*.

⁴ The beginning of this idea emerged in the 1950s with Robert Solow's model as an attempt to replace the Harrod-Domar model which stated that economic growth exists in equilibrium between capital and labor. These two factors fluctuate slightly and secure steady growth until the economy reaches a point where there is no more capital or labor to invest. The economy has then reached what the H-D-model

correcting system, and they presume that technology will eliminate limits to growth and that pollution will decrease without abatement specific technology.⁵ Paul Zane Pilzer claims that “advancing technology constantly changes our very definition of “physical resources” as new ones are discovered”, whereby technological development has created a *new alchemy* where scientific innovation allows us to circumvent resource scarcity, as well as uneven distribution of material goods.⁶

A continuation of this tradition exists in what is referred to as *Environmental Kuznets’s Curve literature (EKC literature)*. These studies show that growth does not have to be limited in order to save the natural environment, and are based on the EKC model which shows that ecological degradation is reversed once a society reaches a certain income level, and then declines proportionally with expanded growth.^{7/8} Technological progress is of key importance to keeping economic growth alive and also to put a cap on many of the ecologically damaging processes that technology itself is causing.⁹ Economic growth will thus in time solve the crisis of resource scarcity and degradation in developing countries, while economic growth and human well-being can continue to develop in industrialized countries.¹⁰ Ecological modernization allows some green objectives to enter into the political discourse when they do not threaten or better support the state imperatives of accumulation and legitimacy.¹¹ Daniel Esty and Andrew Winston urge the use of market mechanisms to make corporations greener, and identify several steps that businesses can take to adapt their company’s production to obtain what they call an *eco-advantage*. By being one step ahead of environmental regulations and executing ecological responsibility, companies can avoid large costs due to restructuring,¹² simultaneously avoiding ecological degradation and allowing continued economic growth. Some theories also warn against trying to limit growth because such measures will create economic insecurity among people, and financial

calls a *steady state*. Solow’s model included technological advancement as a factor, concluding that progress had removed limits to growth, making it possible to circumvent the *steady state*.

⁵ (W. A. Brock 2004, 6)

⁶ (Pilzer, Unlimited Wealth 1994) (Pilzer, God Wants You to be Rich 1997, 16)

⁷ (Brock og Taylor, Economic Growth and the Environment - A Reveiw of Theory and Empirics 2004) (Grossman og Krueger 1994, 18)

⁸ The EKC is further described in the later chapter *A Changing Climate for Green Growth? The Study of Environmentalism and Economic Growth since the 1960s* on page 19

⁹ (Grossman og Krueger 1994)

¹⁰ (Sachs 2008)

¹¹ (Barry Vol. 1, Nos. 3/4 2007)

¹² (Esty og Winston 2009)

instability is believed to cause ethnic hostility and also have other negative effects on human interaction.¹³ Progress is therefore a matter of maintaining a healthy society and social harmony. Progress and technological innovation are deemed success factors by this group, as it is for the next school of thought to be presented. However, while the first group poses a great faith in the market's ability to regulate itself, this next collection of scholars believe that government involvement is necessary to spur and steer the direction of green technologies and ecologically benign growth.

This second group is thus part of a trend that reflects optimism for the opportunities that arise from cooperation between government and business, articulated here by Thomas Friedman who says that with all the green inventions that are turning up around the U.S. it seems like the country is "primed for a green revolution." But, he says, the government has to take an active part in order for these innovations to become a significant component of the market. The government should support basic research so that investors who see commercial opportunities in green innovations can pursue their goals with a decreased risk of investment.¹⁴ The political administrative system (PAS) can also contribute by enhanced regulation and by offering economic incentives for companies to engage in voluntary abatement programs.¹⁵ That the programs are voluntary should however not prevent the government from being exceedingly involved in their execution; a study from the University of Pennsylvania shows that voluntary corporate environmentalism has limited effect, and though environmental initiatives that spring from corporate social responsibility (CSR) usually have clear initial gains, these positives gradually diminish because the programs tend to lose momentum over time.¹⁶ Other similar studies correspond to these findings, concluding that voluntary efforts have little effect "where there is a clear desire for major change in behavior" and recommend these programs only as temporary resolutions when regulation seems premature or lack political support."¹⁷

A third group of scholars argue that the future of our global environment is dependent on a limitation of economic growth. This group opposes growth for several reasons; the least fundamental deem that the traditional paths to environmentalism, like

¹³ (B. M. Friedman 2005)

¹⁴ (T. L. Friedman 2009)

¹⁵ (Peterson, McKinstry Jr. og Dernbach 2008)

¹⁶ (Morgenstern, Pizer og eds. 2006)

¹⁷ (Borck og Coglianese 2009)

technological fixes and conservationism, are not working well enough,¹⁸ while other more radical views object to economic growth due to its negligence of “real values” such as kinship, safety and solidarity.¹⁹ Common to all is the notion that economic growth does not equal social or individual well-being, and these scholars either suggest changes to the current system, or a completely new and alternative system, both which promote the well-being of people and nature. James Gustave Speth welcomes continued growth for the “bottom billion”²⁰ in the form of what he calls “good growth” which provides humans with pleasure, engagement and meaning. However in affluent countries like the U.S. growth has gone beyond this point and the question needs to change from if we *can* grow to if we *should* grow. Speth says that in the United States social development has been on hold, meaning that America’s affluence is not being transferred to neither environmental nor social performance. Robin Douhitt says that “Results indicate that deviation from average peer expenditure patterns is important, but that spending less than average, holding income constant, improves perceived life satisfaction.”²¹ The question that Speth and Douhitt ask is whether ecologically damaging growth can be defended on the grounds of its benefits to humans, or whether a new index for welfare than the gross domestic product (GDP) is needed. Speth is citing Daniel Kaneman who says that “as societies grow wealthy differences in wellbeing are less frequently due to income, and more frequently due to factors like social relationships and enjoyment at work”²² and if this notion takes precedence over the less genuine happiness that the economy brings, then we might reach a level of sustainable growth.

An issue that affects and complicates all of the aspects above is that of consumption. Within the two first schools of thought consumption is a topic that for the most part left out of the equation, because it is believed that technology and progress no longer makes the interaction between humans and the natural environment a zero-sum-game.²³ The development of clean technologies and increased resource efficiency has made

¹⁸ (Speth 2008, 116)

¹⁹ (Hamilton 2003) This is also the essence in Harvey Molotch’s growth machine theory, the *machine* being an unconscious instrument which, regardless of negative consequences, works only for accumulation of wealth.(Molotch, JStor 1976)

²⁰ (Collier 2007)

²¹ (Douhitt 1992)

²² (Speth 2008, 143,)

²³ (Pilzer, Unlimited Wealth 1994)

restriction of consumption redundant²⁴ and the focus should rather be aimed at developing such instruments further. These assessments are deeply contested by the third direction of scholars who believe that the earth has a limited number of resources and the hyper consumption that hallmarks the industrialized world is depriving others from their fair share of the cake. In addition the earth has to absorb the waste products from human activity, so even if it should turn out that resources are not limited, there is still a problem of how this waste can be disposed.²⁵ These are issues that could potentially be solved through legislation, but the problem of consumption goes deeper than the fact that people buy too many things, and the question of consumption should therefore go deeper than just improving it.²⁶ Consumption is closely attached to emotions, and “beyond meeting basic needs, consumption brings us pleasure and helps us to avoid pain and, worst of all, boredom and monotony.”²⁷ In addition “personal insecurities and social pressures lead people to come more attached to material goods” and all these positive feelings complicate the issue of limiting consumption far more than it does to mandate green producerism. Despite the joy shopping brings, the happiness that consumption is short lived, both because it is a “false” feeling and because the highly sophisticated strategies of the advertising business is working to create a constant flow of constructed needs. More and more people are becoming aware of this relationship; however the control over their choices is largely constrained by the larger system of the growth imperative²⁸ and Speth concludes that there is a need to “create social environments where overconsumption is viewed as silly, wasteful, ostentatious.”²⁹

2.1.1.2. **Why the Economy Should Embrace the Ecology**

Considering the empirical evidence and argumentation in the texts presented above I draw the following conclusion about the relationship between ecology and the modern economy: the modern economic system, with its relentless focus on growth, is the most likely culprit behind the pending climate change. Secondly, no alternative system is at present a viable replacement for the capitalist economy, thus the primary aim in further studies of this relationship must be to look for changes that can happen *within* this

²⁴ (W. A. Brock 2004)(Esty og Winston 2009)

²⁵ (Singer 2002, 34)

²⁶(Mason 1981)

²⁷ (Speth 2008, 156)

²⁸ (Hamilton 2003, 8)

²⁹ (Speth 2008, 163)

system. It is of course possible, like the Solow and EKC literature above assumes, that the economy in time will be able to grow without causing environmental degradation, a conclusion that, if agreed upon, would suggest that we should encourage growth to expand even faster than it does. But can we trust that these conclusions are right? I believe that we should not; the counterevidence convincingly argues that the EKC has a limited reach. In addition and perhaps more importantly: if it turns out down the line that the EKC did not model the development correctly we will have a problem that is beyond repair. That is a risk we cannot afford to take, but as noted initially the current economic system has no real contenders, therefore a more ecologically benign growth will have to evolve inside this system. Is that at all feasible? Assuming that the answer to that question is yes, what should the alternative look like, and what changes will have to be made? As a starting point we should be looking for signs of change that are already emerging and assess the possibilities of these changes to contribute to the necessary transformations, like the status of the “green market” and the development of so-called green products.

Though the sentiments vary, most of the literature above concurs to the statement that growth is the number one common objective in today’s world. However, the emerging markets of green products and renewable energy industries (REI) could be signs that an alternative and ecologically benign growth is in the making. The REIs have an inherent potential for doing away with the connection between economic growth and ecological degradation, but are they aptly fit to complete a task of radically changing that relationship? If it turns out that they are not, other alternatives will have to be considered. Knowing that growth is the cause of most of the damage to the environment then a limitation of this activity seems like the straightforward answer to generate the change that we need. However, limiting growth might have much more severe consequences than just limited purchasing power and reduced tax revenues. When the economy takes a hit these are threats that can potentially cause social unrest and hostility, and must be included in the equation when limitation of growth is discussed. At the same time studies show that the impacts of climate change also will have severe negative effects on human interaction, so how then do we weigh the consequences of these outcomes against each other? This dilemma forms a catch22, thus we should also ask if it possible to be ahead of the game and dam up for these negative upshots. Today a country’s per capita general domestic product (GDP) is used as a determiner for

human welfare in that country, but is economic growth really a prerequisite for human wellbeing, and further: is wellbeing a requirement for ecological awareness? The answers that come out of such thought experiments are, on the face of it, often unlikely and ostensibly impractical, but their value lie not so much in their practical application, but in the thought processes they trigger – which again can open new discursive paths. This study thus also includes theories that work with these far-reaching approaches to make available a new set of takes on how the future of our economic system might materialize.

All of the above questions are important both for the short term and in the long haul, and they deserve extensive attention from a broad range of scholarly disciplines. Interdisciplinary research is also important to create a coherent approach; the *Ecological Economics Journal* says that “integration [of economics and ecological studies] is necessary because conceptual and professional isolation have led to economic and environmental policies which are mutually destructive rather than reinforcing in the long term.”³⁰ I have applied economic as well as social theories to this study and from the sum of these theories I am left with one overarching question; what changes to the modern economic system are required to arrive at an ecologically benign growth regime?

2.2. Basis and Background for the Case Study

My case study assesses the renewable energy industry in Iowa to clarify the conditions under which this relationship can lead to a functional green economy. To generate explanations and predictions concerning this issue, I draw up the relationship between the growth interests and environmental impact, and analyze the how the growth machine is working in Iowa, using growth machine theory. I utilize economic and philosophical theory to shed a light on possible consequences of limiting versus maintaining growth. In the following section I briefly explain the growth machine theory and outline its main theoretical assumptions.

2.2.1. The Growth Machine

The theory of the growth machine was introduced in Harvey Molotch’s now infamous 1976 article “The City as a Growth Machine,” and though Molotch primarily focuses on

³⁰ (Howarth 2010)

the metropolitan regions, the growth machine power structure can be found in all regions that endorse the growth imperative.³¹ The growth machine theory poses that economic growth in cities is controlled by coalitions of property dependent interests. These *local elites* engage in local politics in order to structure political institutions and governmental agencies so that policies ally with the interests of the coalition members. In that way economic expansion in a region functions like a *growth machine*. The level of involvement from the growth coalition is so far-reaching that Molotch poses that every city is in fact an instrument for these coalitions' interests. Growth is the main imperative of these partnerships and all other concerns become assimilated to fit the strategy of the machine, or, should they fail to adapt, fade out and disappear. The relentless focus on growth renders all other concerns secondary, and growth coalitions are for that reason often criticized by environmental groups for ignoring environmentally damaging practices for the sake of economic gain.

In a country like the United States, with a strong tradition for local self governing, growth coalitions constitute an important part of the power base and decision making bodies within a region. The members of the coalition come from a wide set of backgrounds and do not necessarily share the same value system outside that one common goal, however their mutual interest in growth make them, together with local politicians and bureaucrats, a strong group that effectively promotes and controls regional expansion. Growth coalitions are also dependent on corporate coalitions for success. Capitalist corporate coalitions expect growth from production, while the members of growth coalitions make money from *rent*, i.e. rent and sale of land, or their members are in other ways dependent on growth within the region. New corporations that settle in the area bring about increased activity and as a result further rent income for the local elites. However, because a growth coalition is bound to a geographical space, its power is comparatively smaller than that of the corporate coalition. The corporate coalitions have no specific interest in promoting growth in a particular locality, and can and will move its production if conditions become unfavorable. In that way the accumulation imperative of the growth coalitions, despite their almost uncontested authority in the local community, is dependent on the good will of corporations that settle in the area. Its authority to give tax breaks and relax environmental regulations in favor of the elites and corporations makes the government

³¹ (Molotch, JStor 1976)

an important collaborator for the growth coalition, but the relationship is not a one-way stream of give and take. The collaboration also benefits the government; Molotch notes economic growth is the only area of interest where government and business communicate in accordance with each other.³² The promise of new businesses can for instance help the government maintain legitimacy through the promise of growth and jobs to the region. It is therefore in the interest of the local governments to function as ambassadors for the coalitions, and support them in their attempt to attract buyers and renters. This collaboration also contributes to creating an image of a tight-knit community, an attractive feature for potential investors.

The local media is another actor that can contribute to this perception. Due to its image as an “unbiased” voice in the fight between different interests, media therefore also constitutes an important factor in the growth machine. But the image of the press as an unattached player is however a not correct; Molotch argues that the different media sources function as *statesmen for growth*, because the newspapers’ and local stations’ existence is also dependent on a stable group of customers. This is contrary to the common perception of the media as a perpetrator for ecological awareness, however these sentiments are for the most part limited to support in editorials and do not prevent the news media to “promote growth-inducing investments in their region.”³³ These “positive media frames” can contribute to concealing truth about an issue, and also to legitimize potentially damaging effects of growth.

By applying the quantitative and qualitative measurements in Molotch’s theory, I will be able to identify the different interest groups that are active in Iowa and to identify their patterns of interaction in the growth machine. This will also help me determine if the expanding alternative energy industry is undermining the power of the growth imperative.

2.2.2. **Choosing Iowa**

The aim of this thesis is to see if a new and ecologically benign growth can develop within our current economic system, and through empirical work it is possible to come to an assessment of the green producerism and the renewable energy sector’ success in

³² Molotch is here directly or indirectly influenced by Fernand Braudel who says that within the liberal market the state serves as an underwriter for monopoly rather than a protector of competitiveness, and that power therefore is given to capitalists at the cost of the majority of the population.

³³ (Logan og Molotch 2007, 73)

causing such a turn. The state of Iowa does in that regard pose a great object to study; the state has over the course of a few years multiplied their energy output from renewable sources, and is at present covering 20 % of its electricity needs by wind power, while in addition biofuels and photovoltaic energy contribute significantly.³⁴ Commenting on this development Governor Chet Culver said: “This is an industry which barely existed a generation ago; but now, nine international companies have made Iowa their home, producing towers, turbines and blades, and more than 200 Iowa-based businesses are in the supply chain.” These numbers, along with a large array of empirical evidence, makes it safe to say that much of the state’s basis for economic growth lies in the alternative energy sectors, in addition estimates show that as much as $\frac{3}{4}$ of Iowa’s terrain is eligible for wind turbines leaving great room for further expansion.³⁵

The state government has taken a leading role in generating this development by sponsoring invention and attracting foreign investors to the region, leading to a diverse body of small and large scale renewable related businesses. Economic growth and ecological awareness are often seen as two issues that stand in stark opposition to each other, but contradicting this assessment Iowa’s Governor Culver has said *he “believe[s] what is good for the environment can be, and should be good for the economy and for job creation”*³⁶ and in this regard Governor Chet Culver has also emphasized the importance of a mix of local and foreign entrepreneurs, displaying the transnational character of the Iowan economy.³⁷

The success of the renewable energy programs in Iowa seems to have come as a result of the focus on energy efficiency, job creation and growth and, to a lesser degree, its benefits to the natural environment, Culver’s words: “good for the environment...should be good for the economy.” By apparently separating the issues of energy use and climate change and instead focusing on economic prosperity and thrift, it is possible to get support also from the relative high number of people that are skeptical of climate change. The Iowan approach is therefore likely to yield valuable

³⁴ This figure is correct assuming that all the energy is consumed within Iowa, but because of exports to surrounding states it is not possible to determine how much of this is used in Iowa. (Osterberg og Galluzzo, Think Wind Power, Think Iowa 2010)

³⁵ Note: $\frac{3}{4}$ is the maximum and not a realistic aim due to restrictions from private ownership etc.

³⁶ (Osterberg og Galluzzo, Think Wind Power, Think Iowa 2010)

³⁷ (Culver 2010)

insights that will be of great importance to answer the question of how we can develop an ecologically benign economic growth.³⁸

2.2.3. Qualitative interviews

I performed three qualitative interviews with activists and employees at environmental NGOs and one with representatives from the local administration. Because my thesis is trying to detect a beginning movement towards an ecologically benign growth, I needed informants who had detailed information about the development of the renewable energy industry (REI) in Iowa and who could inform about the elements that constitute collective action. The NGO informants were chosen on the background of their participation in the coalition of environmental organizations; the Iowa Environmental Council. In addition I set criteria of for my informants' long term involvement in the field, and a high level of participation in the organization, as I found these informants to give more reliable information than members with an arbitrary involvement, or those who are merely "check book members". I interviewed the energy program director, development director and communications director of the IEC in addition to the director and staff members of the Iowa Citizens for Community Improvement.

A few things might have weakened the value of the information I have collected; the NGO representatives I interviewed all worked for organizations that are members in the Iowa Environmental Council, which might have made the information less diverse than if I had interviewed unattached groups. The interviews were also performed in slightly different ways. The IEC directors were interviewed individually, while the three representatives from the CCI were interviewed as a group. The interview with the local administration was performed ad hoc, as I made a phone call to ask one question and the person arranged a phone conference between me, him and two of his colleagues right then and there.

Still, I do not believe that any of these aspects have had any major impact on the information, as the IEC consists of a very diverse group of member organizations that do not necessarily have the same agendas or opinions on all environmental issues. Two of the interviewees mentioned the diversity among the IEC member organizations specifically, and I believe that this supports my conclusion. Nor do I deem that the

³⁸ In Kansas a similar approach has had great effect; by focusing on economic benefits, spiritual and social values as well as patriotism, climate skeptics are making significant efforts to save energy.(Kaufman 2010)

variation in conditions for the interviews have had a major impact on the results; there seemed to be coherent opinions within the groups whether they were interviewed together or separately. By the time of the unplanned phone interview I had already gone through the questions with the other groups, and I knew the questions and the interview guide well, including their strengths and weaknesses.

The Iowa Office for Energy Independence (OEI) was one of the institutions that attracted my attention in the preparation for my case study, and I revolved many of my questions around this government project. It turned out however that when I asked my informants about the OEI they had little knowledge about the project; one person actually had no knowledge about it. The same person said that the governor's office did not always distribute information about new initiatives widely, and the OEI "might be one of those [governor Culver's] initiatives".³⁹ In retrospect I see that I should have followed up this statement with a question that could have revealed if it was a result of my informant's personal attitude towards the governor, or if the governor's office uses a strategy that limits the spread of information about its projects. Because I had assumed my sources' knowledge about the OEI, I had prepared many of my questions to relate to that particular project. Because my questions were open-ended and the OEI is an institution that deals with the larger issue of energy independence, I was able to rephrase my questions quite easily during the interview. Instead of asking about the OEI in particular, I changed the focus to energy independence in general, and the impact it would have on the use of natural resources and the economic development of Iowa. The surprising discovery that the OEI was unknown to most of my informants was also a valuable finding, and contributed to my study of the growth machine in Iowa.

Looking back I also see that a weakness of my case study was the lack of interviews with people from the renewable energy industry itself. This has left my analysis of their part in the growth machine to be drawn from the documents that I have collected online, and information I could draw from the interviews I performed with others. I have been able to collect a large amount of information from various sources; the companies own homepages, media coverage, campaign funding records and through reports and commentaries from environmental NGOs in Iowa. I therefore believe that I have been

³⁹ (Laws 2008)

able to eliminate most uncertainties this shortcoming could have caused and trust that my analysis is based on correct and sufficient information.

2.2.4. **The Local Media – Tracing the Growth Imperative in the Des Moines Register**

In order to identify the qualitative characteristics of the media's role in the growth machine, I chose to focus on the largest newspaper in Iowa, the *Des Moines Register* (DMR). I decided to center my attention at the DMR for several reasons; Molotch identifies it as a problem that most metropolitan areas only have one major newspaper and the DMR fits that description. The limited size of my paper also made it necessary to perform a rather strict selection of sources, and instead of several media I chose to compare DMRs opinions pertaining to growth and renewable energy, and how they weigh against each other in the paper's editorials and business section respectively. To get an impression of the opinions over time, I made my selection from papers published between November 2008 though the end of April 2010. The choice to use a newspaper instead of local TV or radio stations in my study was made in order to make my source more easily available in Norway. Due to the strong influence of TV and radio, there is a risk that I might have lost especially due to the declining reading base of printed media. These figures do not in the same way apply to local news papers as to larger actors like the New York Times, Washington Post etc, and in my view the DMRs body of readers is. Based on Molotch's theory I also concluded that any local media will have similar interests in local growth due to their heavy reliance on money from advertising.

Because Molotch theory suggests that local media will have a dual role; ecological consciousness in the editorials and promoter of economic growth throughout the paper, I chose to search the editorials and the business section of the paper for certain key words and detect the angle of the paper to see if the promotion of growth is becoming "ecological all over". I chose my search words so that they would bring up articles that would include Molotch's theory about growth and the topic of renewable energy sources. The search words I used were:

- Jobs
- Energy
- Renewable
- Environment
- Growth
- Future
- Bio fuels
- Wind

- Sustainable development
- Economic development

To reveal if such duality exists in the Des Moines Register (DMR) I used framing theory, a theory commonly used in communication studies to reveal media biases.⁴⁰ Framing theory has been criticized for lack of a coherent theoretical model and a joint agreement on content. This flaw is apparent in the theory's lack of quantitative measurements, and the utilization of the theory has therefore mainly been issue specific. Attempts have been made to concretize factors that identify framing; Dietram A. Scheufele has made a list of signs to look for. The list specifies five measurements: social norms and values, organizational pressure and constraints, pressures of interest groups, journalistic routines, and the journalist's ideological or political orientation.⁴¹ Scheufele's list functions well as a guideline in my search for a media bias in a state that has been highly progressive in promoting energy independence and of initiating renewable energy projects. My study shows that the Des Moines Register's attitude towards the renewable energy sector differs in the paper's business section compared to in its editorials. This observation will help determine the DMR's place in the growth machine, as papers apparently are promoting ecological awareness and responsibility, but function according to Molotch as key "helpers" in the growth machine.

2.3. Terms and Central Concepts

2.3.1. Renewable energy industry (REI)

Renewable energy (RE) includes hydro, geothermal, solar, wind & biomass. When I refer to the *renewable energy industry* in this study, I refer to large scale commercial production and sale that is meant to provide a viable replacement for non-renewable energy. Energy sources like solar photovoltaics (PV/PVE), wind power and biofuels are examples of sources that are utilized also at a small scale as hobby based projects. Unless otherwise specified these non-commercial actors are excluded from my definition.

⁴⁰ (Kernochan 2004)

⁴¹ (Scheufele 1999)

2.3.2. **Ecological Awareness**

Ecological awareness means awareness of the vulnerability and limits of the natural environment, as well as of the interdependence between mankind and its surroundings. Ecological awareness also takes for granted that behavior reflects those factors.

2.3.3. **Modern Economy**

By *modern economy* I am, like Speth, referring to the broad sense of the term as a real system of political economy, not its idealized form. Modern economy here includes several economies that share the common characteristics of private ownership, competitive markets, consumer society and materialistic values, they have corporate interests at their core, and an administrative state that for various reasons supports and promotes the system. Terms like liberal economy, capitalist economy etc. are also used throughout the thesis in reference to modern economy as it is described above.

Chapter 3. A Changing Climate for Green Growth?

3.1. The Study of Environmentalism and Economic Growth since the 1960s

My study falls into a research tradition that emerged in the 1960s, when scientists and scholars started sending out warnings about an impending environmental catastrophe and targeted economic growth as the culprit. Extensive scientific research followed that tried to analyze the relationship between economic growth and the environment.⁴² The studies resulted in a large and diverse body of research that theorized about this correlation. From early on many of the parties were in fierce opposition to each other, and the participants belonged mainly in one of the following positions: as radical supporters, conditional supporters, weak antagonists, or strong antagonists.⁴³ The results of the early studies thus varied greatly based on these opposing points of view. The theories all identified the mechanisms that control growth and the environment, but failed to provide empirical evidence to support their hypotheses. Thereby this early research was mostly inconclusive and did not manage to bridge the gap between the various fractions in the debate.

A promising development came when computer technology which entered the field in the 1970s and 80s, allowing scientists to make advanced mathematical predictions about the speed and direction of environmental degradation. Economists soon adopted these methods and started incorporating ecological factors into their calculations. The combination of economy and ecology made it possible to develop economic models that could include the impact of growth on the environment, but due to the complexity of ecological problems, as well as the complexity of the economic variables, the mathematical models yielded highly uncertain results. Sander M. de Bruyn refers to a study by Nancy L. Stokey from 1998 where Stokey analyzed these early computer models based on their methods and conclusions, from which she concluded that the predictions the models had produced were a matter of mathematics and therefore greatly inadequate for real use.

⁴² (Daly 1977) (Meadows, Meadows og Randers 1972) (Molotch 1976)

⁴³ (de Bruyn 2000, 3)

By the 1990s science had begun finding methods that made empirical evidence available to support theoretical models that attempted to determine the connection between the economy and the ecology. J. O'Connor's theory on the "second contradiction of capitalism" (SCC) treats the environment as an economic resource and predicted a self-obliteration of capital's conditions for production, and that this would lead to underproduction through which the capitalist system would destroy itself.⁴⁴ One of the most popular models proved that environmental quality declined with the rise of economic growth, but that negative trends shifted once society reached a certain level of affluence. A model of this relationship was made by converting the Kuznets Curve, originally designed by Simon Kuznets to explain patterns of social inequality, and replacing the factor of "inequality" with "pollution". In the *Environmental Kuznets Curve* (EKC) correlation is shown as an inverted U-shape where pollution reaches a peak and then declines as the income per capita increases. (Figure 1)

Today, the EKC continues to be popular among economists, and reduction in ecological degradation does follow the curve in some areas; in the United States the GDP has increased by 195 % since 1970 yet emissions from the six largest pollutants has decreased by 53% in the same period.⁴⁵ Several similar findings have been taken into account for the validity of the EKC and the model has been used extensively by adherents of economic growth. The curve has proved valid on problems of air and water pollution⁴⁶, but the *ecological footprint* (energy, land, and resource use) has not diminished with increased income levels.

Advocates of the model explain this break in logic as the society still being on the rising side of the curve, and that continued growth is necessary to move to the opposite side. New economic models are thus still developed from the EKC, remaining positive about the self-correcting mechanisms of the market.⁴⁷ The EKC literature does of course not stay uncontested; several studies

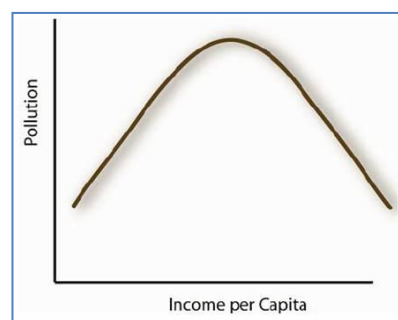


Figure 1 Environmental Kuznets Curve

⁴⁴ (Marshall og Goldstein 2006, 219)

⁴⁵ (Environmental Protection Agency 2010)

⁴⁶ (Grossman og Krueger 1994, 2)

⁴⁷ (Brock og Taylor, Economic Growth and the Environment - A Reveiw of Theory and Empirics 2004)
(Brock og Durlauf, Adoption Curves and Social Interactions 2008)

criticize it for its lack of usefulness and its failure to provide evidence only for fragments of the larger picture of environmental problems. The model is also decried because even if its assumptions proved to be right, most countries in the world are still far from the tipping point of the curve. To meet this criticism some EKC studies include globalization theories such as time-space compression into their model, claiming that the curve is flattening out because developing countries have access to new technology at a much earlier point in development than what industrialized countries have had.⁴⁸ Many agree that this is a positive and probable assessment; however it does not change the fact that, for instance, GHG emissions will continue to rise for years to come, causing the global temperature to exceed beyond recommended levels long before the economies of these countries reach the downward turn of the curve.⁴⁹

3.2. The Question of Economic Growth

Since the early 20th century a country's economic growth has been measured from its gross domestic product (GDP), and there has been an assumption that the per capita GDP stands in correlation with standard of living. Consequently the notion of economic growth as something inherently positive has been widely assumed. The goal of neo-classical economic research has therefore been to find methods for securing long-term economic growth while understanding how to deal with, and preferably avoid, short-term recessions. This again has limited the economic sector's focus on alternatives to growth, and as James Gustave Speth puts it: "promoting growth [has become] the most widely shared and robust cause in the world today"⁵⁰ [sic].⁵¹ The issue of a green

⁴⁸ (Dasgupta, et al. 2002)

⁴⁹ (Rothman 1998)

⁵⁰ (Speth 2008, 47)

⁵¹ In early economic development, growth was defined by the ability of the economic system to increase access to these benefits (monetary wealth, territory, slaves etc.) It was important to maintain growth, because when access to these resources started declining, so did the state itself. This was the case for the Roman Empire and similar states where resource scarcity ultimately led to collapse; the economies had reached their *limits to growth*. A similar situation broke down feudalism in Europe when the advent of monetary economies proved paid workers to be more cost effective than "owned" labor. The aristocracy lost access to the benefits they had had, and the new *middle class* was given the opportunity to accumulate wealth. But even with the mercantilist system, economic growth was still dependent on availability of resources, and since the consumer base increased, so did the need for resources. Circumventing the limits to growth thus became paramount in order to maintain a sustainable state, and it was believed that the best way to do so was to increase exports and, in some cases, obstruct other countries' imports. Free trade was thus still an alien concept; economic growth should happen within the country and not as mutual exchange between states.

At the time of the American Revolution a revolution was also commencing within the economic system. Adam Smith's "*Wealth of Nations*"⁵¹ from 1776 is considered to be the first comprehensive text dealing

economy and a sustainable future is much more complicated than the question of a yes or no to continued growth and the analysis that follows explores the mechanisms behind economic growth and the pros and cons of limiting it.

3.2.1. The Issue of Economic Growth

As an outsider to the world of economics, it has been a surprising discovery to find that the necessity of continued growth is hardly, if really at all, questioned in mainstream economic theory. Is it an unattainable idea that an economy can be thriving without perpetual growth? An economist has a professional interest in people's welfare, but is it possible that something besides economic growth can provide a sense of cumulative personal welfare? Is it in any way an achievable task to convince people that economic development has reached a point where it no longer makes sense to continue? These questions can be summed up as follows: is it possible to change the current economic system so that it becomes ecologically sound, consequently making the economy "green"? If yes, how can it be done? And if not, what are the consequences?

Let us start with the first scenario and what needs to be done. There are three ways that economic growth can meet and heal the harm it has caused the environment; number one: economic growth can be restricted, two: the human practices that are causing harm can be fixed bit by bit and as they come, and third; by removing the connection between economic growth and environmental degradation – such as by manufacturing green products.⁵²

3.2.1.1. Limiting Economic Growth

In the first option "*economic growth can be restricted*" the debate stands between two opposing views: the first include those who believe that growth is a zero sum game

with modern economics and Smith is thus regarded as the father of free trade. Smith criticized the mercantilist system's use of gold as a means for foreign trade, and suggested that the metal should be valued in the same manner as other commodities. By separating currencies from physical and limited resources, growth could expand efficiently and, with mutual trust and benefit, eliminate the idea of trade as a zero-sum game. In sum Adam Smith's theory comes down to this: division of labor increases productivity, which again lowers prices. Lower prices make goods available to larger groups of people, and increase the market base; this cycle is generated, repeated and increased by consumption. It was Smith's idea that the *invisible hand of the market* would function as a control mechanism that would secure benefits for the society as a whole, even if the act of consumption had no such agenda and was a result of the individual's selfish actions. The idea of the invisible hand thus became one of the keystones in free-market thinking, and even though the concept has proven to have a malign effect on many areas of society, adherents of Smith's theory blame these failings on government regulations that do not allow the market to be as free as Smith intended.

⁵² (Sayre 2007)

where the gain of one person or group will have to be matched by a loss of another, the second of those who believe in positive sum growth⁵³, i.e. growth where both parties receive gains that are above zero. Regardless of which stance one takes on this matter, most agree that there is a certain level of connection between the modern economy and many of the ecological problems that we experience today. Not everyone is concerned with about this connection however; advocates of modernization theory like the EKC model will claim that market mechanisms in time will fix these damages, and many also warn about the severe and conceivably unintended consequences of restricting growth. This group's logic includes a popular counter hypothesis/argument which poses that economic expansion "fosters greater opportunity, tolerance of diversity, social mobility, commitment to fairness, and dedication to democracy."⁵⁴ By limiting growth we risk creating societal unrest and antagonism. Benjamin Friedman poses in his book *"The Moral Consequences of Economic Growth"*⁵⁵ that limiting growth is a threat to democracy: "in some countries where there is now a democracy it is still new and therefore fragile" and the prospects of slow or negative growth will threaten these democracies' existence. Friedman does not see this problem as just being limited to budding democracies; he continues by borrowing the words of economic historian Alexander Gerschenkron "even a long democratic tradition does not immunize a country from becoming a democracy without democrats"⁵⁶. Friedman is thus posing that continued growth is necessary to maintain social stability also in countries like the United States. As evidence he points to the upsurges of ethnic hostility in the late 1980s and early nineties which he claims were confluent with the slow growth that started in the United States in the 1970s.⁵⁷ It seems probable that economic uncertainty can create a fear of "your gain being my loss", and it is also true that protests like the ones to which Friedman is referring are radical and pushing the limits of political discourse. On the other hand they are also manifestations of the tradition of democracy and freedom of speech, and I find it unlikely that they will destabilize the American society in a manner where its political administrative system collapses.⁵⁸ In addition I find it theoretically

⁵³ Also known as non-zero-sum-growth

⁵⁴ (B. M. Friedman 2005, 4)

⁵⁵ (B. M. Friedman 2005)

⁵⁶ (B. M. Friedman 2005, 5)

⁵⁷ (B. M. Friedman 2005, 198)

⁵⁸ The Tea Party Movement that is currently gaining momentum in the U.S. would perhaps be a good contemporary example. The Tea Party movement is a political movement in the United States that emerged after the election of President Barack Obama and disenchantment with Republican politicians

questionable to make moral collapse a matter of absent financial security alone, but can concur to its relative importance and I find it interesting to engage in a thought experiment where we assume that Friedman's assessment is correct.

3.2.1.2. **Arguments against Linking Environmentalism to Modernization/Growth**

If we use Benjamin Friedman's model to make a prediction about the consequences for environmentalism if growth is reduced, we have to assume that continued growth is a necessary for moral and social stability. We then need to picture that advocates of zero-sum growth have "won", and that in order to reverse ecological degradation policies have been implemented that have significantly reduced the annual growth in the GDP. What would then become the consequences for the environment and environmental ethics in the U.S.? Helen Fein has done extensive studies on human interaction in situations where stability and security are threatened.⁵⁹ Fein believes that people react and interact with each other from individual *universe(s) of obligation* which she describes as the "range of persons and groups toward whom basic rules or 'oughts' are binding [and] by whom we can be held responsible for our actions."⁶⁰ Fein's theory is anthropocentric, yet one can imagine that the natural environment also has a place in such a universe, and where it is positioned – core or periphery – will determine the effect limitations to growth will have on the development or sustainment of ecological awareness. Paired with Friedman's theory Fein's model makes it likely to assume that in a time of economic downturn the environment will be moved away from the center of this universe, resulting in a feeling of reduced environmental responsibility. Yet other directions for development are also possible. The above conclusion is drawn from the assumption that moral is a full stomach phenomenon and with this logic the feeling of obligation towards the environment would likely be located away from the core in a financially unstable climate. Yet examples of the opposite can be found; Ramachandra Guha criticizes a similar theory from Lester Thurow which assumes that environmental

via a series of locally and nationally-coordinated protests. The protests were partially in response to several Federal laws: the Emergency Economic Stabilization Act of 2008 the American Recovery and Reinvestment Act of 2009, and a series of health care reform bills. The movement has been accused of racial hostility after incidents of racism at several of their rallies. However, as Friedman is being criticized for in regards to his other examples, it is also here hard to determine whether the protests came as a result of the economic recession or if it is an embodiment of the racism that exists separate from the country's financial situation.

⁵⁹ Particularly on issues of collective violence, human rights and genocide (Harvard University 2010)

⁶⁰ (Fein 1977, 7)

concerns are dependent on a stable and good economy. Guha points to his native India where people have protected and preserved the natural environment independent of economic factors.⁶¹ Guha's comment is appropriate and interesting; it is obvious that "concern for the environment" exists independent of financial status. His statement is also supported by other studies which show that people in developing countries often are good at environmental management.^{62/63}

As shown Guha and Friedman both pose valid arguments for why environmentalism should or does not necessarily have to be linked to economic growth: Friedman's theory can be interpreted as a warning against doing so, while Guha's example shows that the two can exist independent of each other. The first closes the door to any questions of limiting growth, while Guha opens the door to a different take on environmentalism than what is common in countries with a modern economy, namely an ecology that is detached from financial issues. This take on ecological awareness poses an approach that deserves closer attention, and I return to it in a later section when I discuss the role ethics can have in supporting a sustainable economy.⁶⁴ Before doing so, let us go back to the list presented in the beginning of this chapter and look at the second way through which economic growth can restore and prevent further damages the natural environment.

3.2.1.3. **Piecemeal Fixes to Environmentally Degrading Practices**

The previous section theorized about *restriction* of growth, but the economy also has other ways to adapt to the needs of the natural environment, and the following segment looks at the application of technological solutions for reducing or eliminating the damaging effects of human practice. I assess economic theory's reasoning for how and why the modern economy will benefit the environment and consequently the reasoning for why it should continue to grow.

⁶¹ (Guha, How Much Should a Person Consume 2006, 1)

⁶² (Brennan og Lo 2008)

⁶³ This issue is much debated and poverty is in many studies seen as the direct cause of ecological degradation. Due to the topic and scope of this paper I will not go into detail about this issue, but cannot refrain from a comment: the conclusions that these studies make are to some extent incomplete and need to be addressed with caution if used in applied politics. For further reading I recommend "Common Wealth" (Sachs 2008) and "Blueprint for a Sustainable Economy" (Pearce og Barbier 2000)

⁶⁴ See "How Can Support Be Mustered for a Sustainable Economy?" on page 30

3.2.1.4. **The Relative Fix of Technology**

It is suggested that economic growth can mend the harm it is causing by the application of technological remedies. By targeting environmentally damaging practices, market mechanisms can be used to eliminate the problems they are causing. This approach is applauded and encouraged by economists as well as policy makers, and has its basis in economic growth theory and the notion that technological development will make us able to utilize resources that have formerly been unavailable. Technology will then bring about a more economic resource use and in turn make growth sustainable.

This idea is one of the founding principles of the neo-classical growth model, known from the work of Robert Solow. Within this line of reason growth is in itself inherently good. Thus the continued expansion of it is not put into question, and models based on Solow's theory and the Environmental Kuznets Curve (EKC) are being used to justify the promotion of continued growth: Brock and Scott have developed a model designed to show that economic growth ultimately is of benefit to the environment. They state that "ongoing technological progress in both goods production and pollution abatement are together responsible for the three most salient features of the growth and pollution data: declining emissions to output ratios; pollution abatement costs that are roughly constant as a percentage of national output or manufacturing value-added; and a general tendency for the environment to at first worsen but then improve as income levels rise"⁶⁵. Their thesis is backed by other research: a study performed by the National Bureau of Economic Research (NBER) finds "no evidence that economic growth does unavoidable harm to the natural habitat [but that] air and water quality benefit from economic growth once some crucial level of income has been reached."⁶⁶

Based on their applied variables these extensive studies performed from the EKC thesis are undoubtedly correct in their assessments. But the models are not valid as determiners for a general conclusion about the relationship between the environment and economic growth; the findings based on the EKC are issue specific and do not function as a coherent methodological whole. Most EKC-based studies draw their empirical data from measurements of ambient pollution such as air quality and water contamination, excluding variables such as resource exhaustion and transformation from domestic production to import: when countries reach a certain level of income they start

⁶⁵ (Brock og Taylor, Economic Growth and the Environment - A Reveiw of Theory and Empirics 2004)

⁶⁶ (Grossman og Krueger 1994, 18)

importing goods that they formerly produced more resource efficiently themselves, removing the pollution problem locally but increasing the output globally.⁶⁷ Even if the model proves to eventually become all encompassing, it is likely that the natural resources we now have at our disposal will be gone by the time we get on the right side of the curve. Such is also the problem with the conclusion of the NBER study as their quantitative data is limited to ambient pollution levels and thus leaves out a large part of the problem. Robert Solow's model says that technological inventions, before labor and capital, are the reasons for long-term economic growth. Later analyses of this model have shown that the reality is different, and that as little as 15 % of growth came as a result of growth in productivity, while 85 % is attributed to labor and capital.

Developing new technology to fix problems caused by old technology can to an extent adjust failures in the natural system. But as we see in the case with corn for fuel, ecological problems are often too complex to be fixed by technology, and such piecemeal approaches might lead to a worsening of the situation, like the biofuels production in Iowa that is expanding the dead zone in the Gulf of Mexico.⁶⁸ These concrete issues are important, but behind them lay a fundamental problem: applying technological solutions does not fix the systemic failures that allowed the damage to happen in the first place. In Iowa biofuels mitigated the effects of the high gasoline prices, but it did nothing to solve the problem of ever-increasing energy demands. And the atmospheric temperature controlling mechanisms that are damaged by greenhouse gas emissions will not be restored to their full capacity even if CO₂ emissions were to be reduced to a pre-industrial level – nor can the atmospheric layers be fixed by technology.

Perhaps the most significant dilemma pertaining to the application of piecemeal technological fixes is the risk that it will create a sense of being exempt from responsibility, that it is possible to continue with business as usual. The latest report from the U.S. Energy Information Administration predicts that the average energy use per person will decline in the U.S. through 2035 due to structural changes and efficiency improvements. There will also be a sharp decline in energy use from manufacturing. However the *overall consumption* rises and that fact is what calculations should be

⁶⁷ (Grossman og Krueger 1994, 20)

⁶⁸ For further details see "How is the Growth Machine Undermining the Realization of an Ecologically Prudent Growth Model in Iowa?" on page 64

based on; if people are given a false notion that technology has solved the energy problem then they will have no incentive other than to carry on with business as usual.

3.2.1. Removing Connection between Economic Growth and Environmental Degradation

In alternative three, economic growth is separated from ecological degradation, i.e. the first no longer affects the latter. Neoclassical theory assumes that it is in the nature of business firms to maximize profits and operate competitively in markets,⁶⁹ which means that other goals are secondary to, or dependent on their ability to boost the corporate end result. This narrow-minded focus is, as shown above, the primary problem in the relationship between the economy and the ecology.. To resolve the conflict of interest, modern day economists advocate *environmental economics* as an answer to the market's incapability of caring for the environment – by applying microeconomics to the environment, environmentalism in turn becomes consistent with our market-based economy. The role of the consumer is in that respect high up on the agenda, often heavily criticized (and rightly so) for being a perpetrator for climate change. The issue of consumption is consequently of paramount importance and a positive turn in that direction is that ecologically sound products constitute an increasingly significant part of the market: renewable energy is becoming commonplace, and food chains like Trader Joe's and Whole Foods, leading merchants of organic groceries, are experiencing increasing interest for their products. This is a positive trend indeed, however consumers so far do not have democratic accessibility to these products; their choices are largely constrained and shaped by a larger system of corporate power and political force, propelled and amplified by the advertizing industry. Consequently the chief focus should be the source of these damaging practices; without green producerism there can be no green consumerism.

One thing becomes evident when we look around today: as consumers we are bombarded with products that claim to be green, and if someone mentions the word “green,” everyone nods meaningfully as though they know what “green” stands for. But what does it really mean? Unless we manage to clearly identify the parameters for what constitutes “green”, the responsibility to make ecologically sound decisions remains with the consumers. I have in this paper defined “green” as businesses or products that in all parts of the production chain utilize raw materials and methods that are in

⁶⁹ (Söderbaum 1993)

compliance with ecological sustainability. In order to make products that fit this principle, standards for green have to be institutionalized through regulations that are *actual*, meaning that they cannot be corrupted by the bonds between government and corporations, and *anticipated*, meaning that the environmentally damaging practices should be expected to become regulated, and financial consequences from attempts to manipulate ecologically sound processes or products should be anticipated.

The report “*The environment as a factor of production: the effects of economic growth and trade liberalization*” has concluded that “economic growth and trade liberalization decrease the degradation of natural resources if and only if producers internalize their stock feedback effects on production.”⁷⁰ This conclusion corresponds with results from other similar studies⁷¹ and should be the basis for developing regulations that can remove the connection between economic growth and ecological degradation. Through a combination of sticks and carrots, governmental directives can make environmental management a positive-sum game for producers, as well as for the environment. Two options are in that regard available and should be applied in concert: number one is the use of *economic incentives*, and two is the use of *enhanced producer responsibility (EPR)*. Economic incentives are most favored by environmental economics; Speth quotes economist Paul Portney who says that “market approaches are now the default position in environmental policies.”⁷² These incentives can be used to spur research and development in green technology and production, and, for instance, the negative sounding “polluter pays principle” can, through the use of market mechanisms, be articulated more positively as “pollution-prevention pays.” The United States has also been leading in using regulations that use economic incentives.⁷³ Economic rewards have proven to be effective, and the U.S. Energy Information Administration predicts that tax credits will continue to encourage the installation of renewable technologies. Their May 2010 report uses two different cases to forecast the future of energy consumption: a *reference case* and an *extended policy case*. The reference case shows that if the tax credit program for renewable resources is ended as planned, the total installed PVE⁷⁴ capacity reaches 9.5 gigawatts in 2035. In the extended policy case PVE

⁷⁰ (Lopez 1994)

⁷¹ (Alauddin 2002)

⁷² (Speth 2008, 94)

⁷³ (Esty og Winston 2009, 75)

⁷⁴ Photo Voltaic Energy

technology is predicted to grow to 60.5 gigawatts in 2035, granted that the system of tax credits is continued indefinitely.⁷⁵ These calculations undoubtedly speak in favor of a continuation of economic incentives, but knowing the nature of the growth machine⁷⁶, it is important that these inducements are accompanied by requirements for enhanced producer responsibility.

The close connection between government and the corporate world (such as politicians' dependency on campaign funding) creates a risk of the economic incentives being manipulated by corporate interests.⁷⁷ EPR will help balance this flaw in the system; corporations should expect to be held responsible for environmentally damaging practices, and not to be exempt from responsibility from new laws by a grandfather clause or similar exceptions. EPR should also include an obligation from producers to inform customers about potential hazards related to their products. Such requirements do of course already exist for most products, but the extent and accessibility of information should be made more easily understandable and accessible. In addition they should include a change from the current situation where producers seem more eager to tell us what is *not* in their products; the food industry enthusiastically tells us that their products are “fat free”, “low-on-carbs” and with “zero trans-fat”, but fail to inform us what they have replaced these ingredients with. The same sort of strategy, popularly termed “green washing,” is also used in the marketing of green products. Such manipulation can only be eliminated through disclosure of production processes, as well as stringent demands for truthfulness in advertizing. Together these two measures, economic incentives and EPR, should leave no room for projecting quasi-green products as ways to save the world.

3.2.2. **How Can Support Be Mustered for a Sustainable Economy?**

Returning to Guha's example of an environmental ethics arising among the Indian poor, what can we learn from this way of relating to nature? The differences in the Indian and American realities make Guha's comparison somewhat vague; the Indian farmers protect the natural environment in plots of land, known as *sacred groves* owing to religious traditions of nature worship.⁷⁸ This kind of environmental protection is opposed to modernized societies' relationship to nature in which “the earth and all that

⁷⁵ (U.S. Energy Information Administration 2010)

⁷⁶ See **Methodology and Theoretical Foundations** on page 3

⁷⁷ (T. L. Friedman 2009, 78)

⁷⁸ (Verma 2009, 116)

is therein is given to men for the support and comfort of their being.”⁷⁹ The sense of responsibility for the environment take different forms dependent on the economic system and in regards to the modernized economy Thurow’s theory seems to relate better to the practice and problems of environmental protection in industrialized countries. What is interesting about the Indian farmer’s take on nature is however that it presents an alternative to the modern approach to nature. America is not going back to peasantry, but an environmental ethics could be developed from other sources and the Indian approach might provide some new insights. In 1868 Inspector Officer of Forests of India Dietrich Brandis, who had come to India four years prior to serve for the Raj, wrote a proposal for forest management in the British provinces. He based his plan on established Indian forestry traditions while attempting to adapt them to fit the demands of the British rule. Brandis suggested that forests could be managed in a parallel administrative system, where community leaders and the Forest Department in concert could tend to both local and British needs. His plan would provide several necessities for free to villagers: wood for various agricultural equipment, wood, grass, etc., for building maintenance, and areas that had not been closed for regeneration would be available for grazing.⁸⁰ Brandis projected the system to be self-supported and the proceeds would be returned to benefit the community. That way the areas not included in the state forests, which were used for commercial purposes, could be conserved through local control and for local benefit. The proposal was not agreed to by the British due to the emerging theory of the “Tragedy of the Commons,”⁸¹ but Brandis’ scheme still remains interesting as a way through which an environmental ethics could support a sustainable economy. The essential features that are transferrable from Brandis’ idea are two-fold: first is the idea of providing basic necessities for free, and the second is the role and responsibilities of the local community. For now let us focus on the first issue; *providing basic necessities for free*.

A group consisting of researchers at the Philosophical Institute at the University of Notre Dame (ND) has brought a similar idea into the debate of how economic growth can exist in partnership with ecological sustainability. The group’s overarching task was

⁷⁹ (Locke 2004/1690, 16)

⁸⁰ (Guha, How Much Should a Person Consume 2006, 107)

⁸¹ Guha quotes one response from a British official; “the village communities [...] could not be entrusted with the powers, or competent to perform the functions assigned to them in [Dr. Brandis’s] scheme.” (ibid.)

to detect the roots of the ecological crisis, and, like many other similar studies. Their study also concludes that the problem is primarily of economic origin.^{82/83} Despite this, the group does not regard a restriction of growth as an obvious solution to the problem; instead they share Benjamin Friedman's concern about the social consequences of limiting growth. But where Friedman fails to follow up, the ND group continues "[because] the consequence of continuing current practice is just as severe." Their study "Unearthed - The Economic Roots of our Environmental Crisis"⁸⁴ attempts to suggest viable solutions to this issue, and how these can be implemented into the modern economic system. As a solution to the predicted problem of moral downfall the ND group suggests that the dilemma could be done away with if basic human *needs* such as clothes, shelter, and food were treated (and provided) as basic human *rights* – not as commodities that presuppose an income to be acquired. What the ND group suggests is thus a partial limitation of growth, or more correctly – to undo the commoditization of certain aspects of the market removing them from the realm of economic competition. By making these commodities available to everyone, the insecurities that Friedman believes will lead to moral and systemic collapse could in theory be eradicated. The ND group uses the current recession as a contemporary example of a possibility to implement these changes: "If the recession ends with a return to the pattern of continuing growth that many mainstream economists hope for, our environmental crisis will continue to worsen. But if we treat the recession as an incentive to find a way of doing business that respects the needs of ordinary people, the biosphere will benefit along with humanity at large."⁸⁵ By removing the insecurity of mere survival it would be possible to avoid economically founded moral negatives.

It would of course require enormous political will to make the necessary changes to the American system– not to mention changes in the country's mainstream social discourse, which tends to disapprove of any suggestion that resembles socialism. Even so, or perhaps exactly for that reason, theorizing about these alternatives is important. A planned economy the way the ND group portrays it will not have to turn into a

⁸² (Grossman og Krueger 1994, 18) (Speth 2008, 50)

⁸³ (Sayre 2007, Preface, p 1)

⁸⁴ (Sayre 2007)

⁸⁵ (Sayre 2007, Postscript, p 33)

command economy like the one we know from, for instance, the former USSR.⁸⁶ The Soviet economy kept everything out of competitive markets, while a system that adopted Brandis' and the ND group's suggestions possibly could create a stable base where people's feeling of security would be less dependent on the overall economic growth. Thus despite the radical nature of these proposals, I believe they are of importance to answer the question of the future of the sustainability of the modernized economy.

Brandis' second proposal was to divide responsibility for the local environment between the overarching bureaucracy and the local community. By distributing management responsibility to the locals, this tactic was hoped to trigger a moral responsibility for the local environment. This is important also today, but what is even more interesting about Brandis' suggestions is that today initiatives like these are believed to be essential to restore the "environmental legitimization crisis" that Marshall and Goldstein say stands in the way for the government to reach a functional environmentalism.⁸⁷ This is a topic that deserves more attention though, and I return to this discussion in the chapter *The Democratic Climate* and the subsection *Distrust*. For now I return to the issue of economic growth, raising the question of if and how the connection between economic growth and environmental degradation can be removed. And if this is to succeed what will have to be the role of producers?

3.3. The Democratic Climate

The measures I have mapped out for the road to an ecologically sustainable economy all require rather extensive government involvement, because along with James Speth I also believe that "a reliable green company is one that is required by law to be green."⁸⁸ We are not alone: many scholars, reporters, and scientists dealing with environmental issues call for government involvement in order to solve our environmental problems. Thomas Friedman even suggests that the United States become China for one day (though not for two).⁸⁹ But are they asking too much? Is it possible to pass efficient and sufficient environmental regulations within the United States governmental system? If

⁸⁶ In the former USSR where state planners decided what was to be produced and allocated workers and resources to produce upon demand. The Soviet economy would thus be independent of fluctuating prices and crop failure in the rest of the world.

⁸⁷ (Marshall og Goldstein 2006)

⁸⁸ (Speth 2008, 178)

⁸⁹ (T. L. Friedman 2009, 429)

not, what can be done about it? Does the environment really need the government? This section looks at the limitations for the government to pass efficient environmental legislation and review some of the underlying causes for these inadequacies. I also consider the effectiveness of voluntary environmental programs and efforts to encourage corporate social responsibility in order to test what I have concluded so far: that government action is essential for a coherent environmentalism.

3.3.1. **The American Way + the Chinese Way = a New Way?**

President Barack Obama and Chinese president Hu Jianto have both promised to make serious efforts to halt green house gas emissions. Their engagement is needed: the U.S. and China are the world's top two CO₂ emitters, and any efforts to improve the global situation will have to include this pair.^{90/91} However there is a problem: Obama's power and authority to follow up on his promises are limited, as was the case for his predecessor. George W. Bush received harsh criticism for not signing the Kyoto protocol, but in reality it did not matter – Congress would in all probability have voted against a U.S. commitment to the agreement.⁹²

Another important factor is that a large percentage of American voters are skeptical of the anthropogenic origins of the emerging climate change⁹³, and consequently some politicians will be afraid to lose votes over this matter. In other words, Obama and the United States have a democratic challenge, a predicament far from Hu's reality in China. In 2008 Chinese authorities banned the use of plastic bags, helping them reduce the country's oil consumption by five million tons annually.⁹⁴ This constitutes a significant cutback, but perhaps the most interesting thing about this directive is not the actual reduction in oil consumption, but the way regulation was imposed. Unlike the case of American authorities their Chinese colleagues did not have to worry about

⁹⁰ (Jianto 2009)

⁹¹ (Obama 2009)

⁹² Distrust is not just a phenomenon that affects domestic politics; it is also a key issue behind the failure of the United States to sign internationally binding agreements on climate change. The United States has a tradition for unilateralism that has rendered the country to largely operate on its own (or with a few selected allies) in matters of international importance, and George W. Bush explicitly said that the U.S. would not sign the protocol because it would harm the American economy. Even the office of President Bill Clinton, fairly well recognized as an environmentally friendly administration, established the North Atlantic Free Trade Agreement (NAFTA) in 1992, as a continuation and expansion of a 1989 free-trade agreement between Canada, Mexico and the United States with the requirements that NAFTA health, safety and environmental policies should be designed in the "least trade restrictive manner possible."

⁹³ (Rasmussen Reports TM 2010)

⁹⁴ (New York Times 2008) (Stanway 2008)

campaign donations or workers losing their jobs. Instead they made their decision based on an assessment that the regulation would benefit the whole of Chinese society, and then imposed the new directives without further ado.

I will not go into a discussion about alternatives to democracy – Winston Churchill said “democracy is the worst form of government, except for all the others”, and I am fairly certain that the cons of the Chinese model outweigh the pros. Still there is no doubt that today’s American democratic practice makes the introduction of new environmental regulations, especially at the federal level, a complicated and slow endeavor. The next section therefore evaluates alternatives to legislation as a means to green the economy.

3.3.1.1. Corporate Greening – Voluntary or Mandated?

Encouraging corporate social responsibility (CSR) is a way through which a democratic government, in order to play to the moral consciousness of corporate leaders, attempts to create change without mandating it. As corporations are taking on the challenge of greening their businesses, it has become close to unthinkable for American companies not to have a green strategy.⁹⁵ In *Green to Gold* Daniel Esty and Andrew Winston have made a handbook for how “smart companies [can] use environmental strategy to innovate, create value, and build competitive advantage.”⁹⁶ The reward for the companies is what Esty and Winston call an *eco-advantage*: by driving an environmental mindset deep into the core of corporate strategy, companies can meet the demands of the growing body of concerned customers while also being prepared for increasingly strict environmental regulations. Their book is an A-Z guide for small and large companies, and if corporations were to follow the advice from these two authors, the world would take a giant leap forward in solving our environmental problems.

As of today CSR is a voluntary endeavor from corporations, which makes its implementation something that for the most part happens when it makes economic sense. This means that corporations, contrary to the advice from Esty and Winston, are likely to only make fractional changes to their production and strategy. In many instances corporations make *some* changes to *some* parts of their practice, while simultaneously trying to circumvent regulations and/or move production to countries with more lenient regulation enforcements. An example of this contradictory practice can be found in the case of America’s largest company Wal-Mart. Wal-Mart improved

⁹⁵ (Esty og Winston 2009, 143)

⁹⁶ (Esty og Winston 2009, Subtitle of book)

its “environmental reputation” significantly after it removed traditional incandescent light bulbs from all their stores in what the New York Times called “the environmental movements dream.”⁹⁷ Wal-Mart explained their program as wanting to influence customers to consume less energy – and the result of the effort was considerable: the energy savings from all the fluorescent light bulbs eliminated the need to build additional power plants meant to supply 450,000 homes with energy. Though this is a significant and impressive move on Wal-Mart’s part, but on the flipside the Wal-Mart case also displays the problem with voluntary environmental programs: when the companies themselves can choose where they want to focus their effort, they tend to do so when it is positive for their bottom line. Lee Scott, CEO of Wal-Mart, told his executives that the company’s environmental efforts would maintain Wal-Mart’s “license to grow”, admitting that there was a second agenda behind the apparently noble wish to lower the nation’s energy consumption.⁹⁸ The building of a new Wal-Mart is a major intervention to the natural environment and the store’s water needs alone can alter the local environment significantly. Plans to build new Wal-Marts are therefore increasingly met with protests from local activists, but the number of local governments voicing objections to Wal-Mart expansion plans is also on the rise.⁹⁹ The logic behind Wal-Mart’s “light bulb project” was thus to maintain the “social license” that would grant it continued access to expand in the market. The dilemma is therefore, as evidence shows, that voluntary efforts like these rarely change things for real or for the long term; economists at Resources for the Future conclude that the effect of voluntary environmental initiatives is limited and “[t]herefore [...] find it hard to argue for voluntary programs where there is a clear desire for major change in behavior.”^{100/101} This again means that efforts similar to Wal-Mart’s, despite the positive effects they might have, only show parts of a large and complicated picture and that their endeavors do not contribute to a categorical establishment of an ecological growth regime.

We therefore end up where we were at the end of the last section: environmental legislation is a key factor if success is to be achieved. However this conclusion does not

⁹⁷ (Barbaro 2007)

⁹⁸ (Esty og Winston 2009, 13)

⁹⁹ Though I have no empirical data to support this assessment, I dare propose the idea that this could indicate a turn towards an *ecological growth machine* that I talk about in my case study chapter.

According to Molotch’ theory, big business will be allowed access into the market by members of the growth machine using the “job-“argument” and

¹⁰⁰ (Morgenstern, Pizer og eds. 2006, 184)

¹⁰¹ See also *Voluntary Environmental Programs: Assessing their Effectiveness* (Borck og Coglianese 2009)

help in solving the challenges inherent in the American democratic system, and it is important therefore to detect the deeper lying reasons behind these problems.

3.4. Distrust and Legitimacy

Regulation is one thing, but how can the system be made legitimate in the people's eyes? In a country with a democratic tradition that favors a minimalistic governing body, ideas of increased government involvement can be hard to sell. Still nearly everyone, except the most hard-headed adherents of orthodox laissez faire, recognizes the need for government intervention in the market, in various segments and for various reasons. Over the past century there has been an increased dependency on the government, yet the United States continues to be the most "anti-government" among the occidental countries, a trend that seems to hold up. In 1964 76 % of Americans responded positively to the question "How much of the time can you trust the government to do what is right?" At the time, exposure of government double standards led to an American identity crisis in the mid-1960s, and has since resulted in a steady increase in cynicism towards Washington.¹⁰² The stark distrust started out among the radical Vietnam protesters, and environmental and other social movements followed. Since the Reagan era this antipathy has also been increasingly dominant on the right side of politics, and resentment towards the government thus seems to influence the climate of opinion on both sides of the political divide. In a Washington Post-ABC News poll conducted in February of 2010, 71 % of the participants said they disapprove of the way the U.S. Congress is doing its job.¹⁰³

For the past several decades partisanship has also grown deeper between the parties' representatives and among the people in general. In the Senate filibusters, which used to be a last resort in issues of particular dispute¹⁰⁴, have become common in the legislative branch, and instead of a simple majority, new legislation must oftentimes muster a supermajority (60 out of the 100 votes). In a way it shows the Senate works as the

¹⁰² (Lipset 1996, 281)

¹⁰³ (Washington Post-ABC News 2010)

¹⁰⁴ The cynicism has also influenced politics, and at times it seems that the two parties work against each other for the sake of obstruction. Filibusters, which used to be a last resort in issues of particular dispute have become common in the legislative branch, and instead of a simple majority, new legislation must oftentimes muster a supermajority. (The supermajority rule, known as Rule XXII was adopted by the Senate in 1917, and is actually an improvement of the filibuster system. Rule XXII says that filibusters can move to cloture if two-thirds (i.e. 60 out of 100) of senators present vote for it.)

“cooling chamber” it is meant to be, but the strong partisanship is increasingly being accused of halting decision making in order to ruin things for the other party.

Seymour Lipset and Thomas Friedman both see mistrust in government as one of the biggest problems for American democracy.^{105/106} It seems a valid concern, as the suspiciousness towards elected representatives reduces the government’s ability to make major decisions unless in times of severe crisis. This constitutes a stern predicament for environmental regulation, because despite the severe and urgent nature of climate change, its consequences are still abstract and do not yet constitute a tangible threat in the way that, for instance, the attacks of September 11, 2001 did. Yet not everyone agrees that this is a serious problem, and, for lack of a similar illustration pertaining to environmental regulation, I use this example from the Economist: In the article “*What’s Gone Wrong in Washington*,” the Economist’s journalist claims that the situation in Washington, D.C., is in fact not all that bad, and uses the TARP bill that saved the banks during the financial crisis as an example of major initiatives that have been approved.^{107/108} The Economist’s examples, Bush’s TARP bill, and the later stimulus bill passed under the Obama administration, do not provide evidence that D.C. is functioning well. Instead they are evidence of what Friedman and Lipset propose: an urgent and major crisis is needed to bypass partisanship in the governing bodies, and as a consequence the democratic principles of the U.S. Constitution are not allowed to function properly. This, on the contrary cannot be said about the process of environmental regulation, so *democratically speaking* the unhurried pace on these issues can therefore be considered to be a good thing.

An article by Brent Marshall and Warren Goldstein titled *Managing the Environmental Legitimation Crisis* brings together the issues of environmentalism and distrust in the government and its institutions.¹⁰⁹ Marshall and Goldstein claim that the legitimation crisis of the government and its environmental institutions (particularly the EPA) has come as a result of the lack of authenticity in the calls for public involvement and proposals. Opinions voiced and decisions made at public hearings have, according to the

¹⁰⁵ (T. L. Friedman 2009, 432)

¹⁰⁶ (Lipset 1996, 282)

¹⁰⁷ (The Economist 2010)

¹⁰⁸ The stimulus bill passed by the Obama administration did of course include incentives to greening of business, and creation of green jobs, but it was a bill to first and foremost save the economy and it will require a similar bill with *environmentalism* as its imperative to get things going at a quicker pace.

¹⁰⁹ (Marshall og Goldstein 2006)

authors, largely been ignored when the proposals did not fit the predetermined agenda from the government. This strategy, the authors say, has led to public apathy and feelings of uselessness, and the perceived arrogance from the government has lessened its ability to put any clout behind calls for ecological awareness. To this assessment it is appropriate to add a note about the changed nature of the environmental organizations since the 1960s – the environmental movement was once a counterculture that aroused the enthusiasm of the general public, however the professionalization of the environmental organizations have made them more like “pocketbook organizations” with a professionalized core of working “activists”. Consequently this group, which could have been a counterweight to the government’s ineptness, is therefore instead under criticism “for taking the same organizational forms as business and government.”

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Some groups are however trying to mend the gap between the government and the people. From the 1990s there has been a movement to “redesign government” which advocates an inclusive, long-term commitment in ecosystems management that is based on interactive collaboration, open communication, and shared leadership between governmental institutions and the public. Their scheme carries great resemblance to the strategy that Dietrich Brandis proposed to British officials in India close to 150 years ago¹¹¹, and by way of authentic collaboration it will, if it succeeds, undoubtedly be a victory for restoring the trust in government locally while at the same time protecting the environment. On the downside the strategy bears in it the possibility for creating too narrow of a focus on harms to the local environment, and the *not-in-my-backyard* attitude that is the hallmark of many local movements could then possibly prevent or exclude concerns for large scale issues such as GHG emissions. While many of the issues that need to be addressed are of global character, they still/dodemand a much wider perspective. In creating an ecological awareness, this kind of involvement is also valuable, but the problem is that it creates awareness locally, yet there is still a risk that it will not affect the sense of a global environmental responsibility that is required. Therefore, protests should include a wider objection than out-of-sight-out-of-mind.¹¹²

¹¹⁰ (Dryzec og et.al., Green States and Social Movements 2003, 96)

¹¹¹ “How Can Support Be Mustered for a Sustainable Economy?” on page 30

¹¹² A global environmental movement is required, and one hands-on effort that this organization could do is for instance what Amnesty International does by using mobile texts to gather signatures for their campaigns worldwide, by which they spread information about e.g. death sentences in remote areas...

3.4.1.1. The State of the Green Nation

To reduce the damages of manufacturing and other components of economic growth, it is possible to combine any of the measures assessed above. However, as we have seen, all of these efforts also risk creating new problems among people and in other parts of the environment .

Replacing fossil fuels with renewable energy is a one of the fastest growing ways that states use to adapt to a sustainable economy. The case that follows at the end of this study gives an example of the comprehensive projects Iowa has introduced to include renewable energy into their economy, and most other American states have committed to extensive environmental programs that are meant to limit the damages from economic growth. The study from Iowa displays some of the less favorable effects of these projects; renewable energy is great at reducing the emissions of GHGs and therefore functions well in terms of aiding the *global* environment. However, every major renewable energy source has a weak spot: river habitat destruction is caused by hydro-derived power, wind power is blamed for avian mortality, solar power is the cause of desert overdevelopment, biomass power is responsible for air emissions, and geothermal for depletion and toxic discharges. Evidently the *local impacts* of renewable energy production are potentially severe.¹¹³ Because economic development (or the fear of discontinued growth) is the main motivation behind renewable energy projects, the biodiversity in the proximity of production sites risk being depleted for the sake of regional economic growth. Whether these “small” local sacrifices have to be made for the sake of a greater good is a returning paradox within ecological philosophy. I remain inconclusive in this question; a definitive yes or no will probably never be a correct answer. What I do believe however is that the goal must be to get to a point where we *first* weigh the different consequences for the environment against each other, and reach a conclusion on that issue before we pay too much attention to how it will affect growth.

James Gustave Speth has specified two ways to make the market more agreeable to the environment: “to transform the market into a powerful instrument for environmental protection and restoration and to limit [...] the imperialism of the market”.¹¹⁴ There are many positive signs that we are in fact moving in that direction, and my case study from Iowa shows that the combination of self-reliance and retracted government has opened

¹¹³ (Bradley Jr. 1997)

¹¹⁴ (Speth 2008, 89)

the way for a diverse body of local regulations and projects. Also at the federal level corporations are feeling the heat. Even though things are moving slowly in Washington, they are not standing still, and there are in fact signs that they are also picking up pace. The Sarbanes-Oxley Act of 2002 has led to an increasing demand for disclosure in the production chain and continues to expand its reach as it is being tried. The act requires companies to calculate their potential liability for environmental damage, and there are speculations about whether these liabilities in the future will include not just “on-site” waste, but also liability for contributing to climate change.¹¹⁵ Because American companies are competing internationally, they are also subject to the regulations of other countries, and with the increasingly stringent directives from e.g. the European Union, American companies will also be at a competitive disadvantage if they are not ahead of their game. One of the widest reaching legislations from the EU is the REACH bill which requires all companies to register all chemicals that they use. Any chemical that cannot be proved to be safe is not allowed onto the market. The U.S. is attempting to follow up with a parallel bill: the *Safe Chemicals Act of 2010* will place similar demands on U.S. companies domestically and thereby grant them easier access to the European market. The bill will make companies liable for failure also by their international supply partners. Although though China has similar legislation, there is a concern from U.S. companies that their Chinese partners will not comply with American government standards. This will then mean that companies will think globally in every part of production, and though it might not lead to a global environmental *ethic*, it will demand a global environmental *responsibility*.

3.5. Complicating Issue – The Problem of Consumption

This thesis is primarily concerned with the possibilities for developing an ecologically prudent economic growth, and believes that the conclusions that have been drawn earlier in the study would help establish such a new economic regime. However, the United States’ population of around three hundred million people makes up the world’s most energy demanding group; the average American energy consumption per capita is double compared to countries like the U.K. and Germany, and is equaled only by small countries like the UAE, Qatar and Iceland.¹¹⁶ In simple numbers, this means that the

¹¹⁵ (Esty og Winston 2009, 77)

¹¹⁶ (Internatioanl Energy Agency 2009)

United States, containing 5% of the world's population, is consuming one quarter off all of the world's resources, but is the turn towards new production standards starting to turn this trend?¹¹⁷

3.5.1. **Positive Trends and their Flipsides**

Over the past decades there has been a significant decline in individual energy consumption in the U.S., due to new energy efficiency standards and more economic resource use in industrial production. Though the development of directives for environmental regulation has been slow in the United States, they have still become increasingly strict, and corporations and businesses today face a large and complicated set of standards for energy efficiency and pollution abatement. A “green wave” is also over us, encouraging consumers to “buy green” and “act green”, and seen together these occurrences are all signs that we are moving towards a more environmentally conscious future. But together these features also sum up what remains the “major unasked question”; the question of consumption.¹¹⁸ Of all of the features of “green” mentioned above, none are asking consumers to buy less.

According to the U.S. Energy Information Administration residential energy use has over the past years declined due to more efficient space heating. However, this gain has been offset by growth in square footage and an increased number of household appliances.¹¹⁹ More efficient use of resources in production has resulted in a reduction in unnecessary use of materials, but simultaneously people are buying more things. And the world's population is booming and the spread of democracy has led to increased personal wealth for people around the world. We are about to reach a population of 7 billion globally; in other words we are more people buying more stuff – *and I think we need to stop.*

The economic recession that hit the United States in 2008 was a result of two factors: a collapse in the subprime mortgage market and a steep rise in energy prices. The recession resulted in two things that were of significance to the topic of this thesis. First, and due to the increased cost of fuels and the insecure job market, consumption dropped drastically, and second the high energy prices¹²⁰ caused a shift in Washington's take on

¹¹⁷ Assuming that the world's resources exist in a zero-sum game

¹¹⁸ (Guha, How Much Should a Person Consume 2006, 222)

¹¹⁹ (U.S. Energy Information Administration 2010)

¹²⁰ ...and the shift in White House administration

environmental issues. To help solving these problems and to restore the economy stimulus packages were injected into the market, partly to arouse development of green industry and green jobs. Using the recession to spur this development was a good initiative and in compliance with for instance what the Notre Dame group recommended in their study.¹²¹ However, the main imperative of the stimulus bill was not to save the environment, instead the stimulus packages were meant to refuel the economy by spurring consumption. Depending on how one reads statistics, between 40 and 70 % of U.S. economy is driven by consumer spending¹²²; and it is safe to say that the system that allows this pattern to exist is responsible for the exaggerated energy use that is causing the ecological crisis. The success of the stimulus packages will mean that the system is still dependent on excessive consumption and the systemic failures that harm the environment will continue to be present. Or as the Notre Dame group puts it out, “we will still have an economy geared to the profit of a few rather than one serving the needs of the many.”¹²³

3.5.2. Limiting Consumption

I cannot help to draw the parallel between the ecological crisis and the history of the American frontier. When the western frontier closed, the United States turned its expansion outward and continued to conquer the frontier through the resources that existed throughout the rest of the world. Today the boundary of the planet itself is reached, and we are at what I term *the ecological frontier*. This means that we can no longer expect to find new and undiscovered areas for prosperity¹²⁴, but need to find a way to live with what we have at our disposal, and within the confines of our planet’s geographical space.

So what can we do to curb the excessive consumption? Economic incentives have been used successfully to encourage corporations to take on environmentally friendly habits. Can a similar strategy be used for individual consumers? If buying green products would e.g. give a tax break, consumers would get an incentive to choose these over their damaging counterparts. A way of doing so would be to raise the taxes on luxury goods

¹²¹ (Sayre 2007) See also chapter *Limiting Economic Growth* on page 22

¹²² In the 70 % scenario, which is the widest used figure, health care is included, which means that much of this spending goes to insurance companies, pharmaceutical companies and other health care providers.

¹²³ (Sayre 2007, 11 (Postscript))

¹²⁴ The Arctic is an exception which, due to global warming and the consequent ice melting in the Polar Regions, is believed to open up and reveal depositories of easily accessible oil fields.

and ecologically damaging products, and then redistribute this money by injecting them into “green” businesses. This could potentially lower the prices of ecological products and thereby make them available to a broader group of consumers and gradually replace conventional products.

Increasing the prices of fossil fuels to limit their use would be another measure towards curbing consumption. However, this is a measure that would decrease people’s mobility significantly, due to the lacking infrastructure for anything but the automobile. After a long history of phasing out public transportation to the benefit of car producers and the oil industry¹²⁵ the lives of most Americans are fully motorized. In 2005 38.6 % of all households owned two cars, while 18.3 % owned three. Many of these were SUVs, which in 2000 for the first time outsold regular cars, and gasoline prices are consequently of vital importance to household economies. In total transportation alone constitute 30 % of the total U.S. Co² emissions, and a cut here would also mean eliminating a large part of this pollution problem. Dryzec poses a critique of the environmental movements as well as from the government; “Land use planning that would reduce reliance on cars – the kind of structural change that strong ecological modernization implies – is simply not on the anti-pollution agenda.”¹²⁶ I agree that this is an important question, but instead of changing the roads and similar infrastructure, I believe that this money is better spent on developing alternative cars and fuels. The prices of gasoline could be increased by taxes that could be directed directly at the auto industry to spur development of a new generation of environmentally friendly cars and trucks. Much of the technology is already there and the auto fleet could fairly quickly be replaced by better cars and the inconvenience of high prices and limited mobility would thereby be a temporary sacrifice. These are concrete measures that could be taken and like I have concluded throughout this study; government involvement would also here be required – a comprehensive and true greening of the economy should be politics, not just policies.

On a more overarching level Speth suggests that there are two ways to sustainable consumerism: *green consumerism* or *reduced consumption*. Green consumerism does not require a reduction of consumption in all areas, but encourages the use of green

¹²⁵ For a more thorough read on the history of General Motors/Chevron’s successful attempt to eliminate the streetcar and other means of public transportation see Ian Rutledge’s *Addicted to Oil* (Rutledge 2008)

¹²⁶ (Dryzec og et.al., *Green States and Social Movements* 2003, 168)

products and it wants corporations to produce them. Green consumerism has much potential, but it also has many pit holes, and Speth lists four major concerns that can constitute threats to its success. These are *the “rebound effect”, privatization of the environmental crisis, “greenwashing”* and last *conspicuous consumption*. To this I would like to add a fifth *dependency on financial situation*. Let us start with the last issue. Studies show that 61 % of Americans are willing to give *significant sacrifices* for the environment, while at the same time 83 % say that they *do not* take active steps to live green, and only 12 % say that they buy green products on a regular basis. According to the 2009 Cone Consumer Environmental Survey as many as 69 % of American consumers will “actively seek opportunities to buy environmentally responsible products and will do so *if it’s within their budget*.”¹²⁷ What these statistics show is that people are increasingly aware and concerned with products, but because green products tend to be higher priced than conventional products green consumption seems to become a balancing post in people’s budgets, i.e. ecologically sound behavior is a matter of money. But money can also prove to be a problem the other way around from the *rebound effect*; if consumers save money on energy efficiency and other “green” initiatives, it is likely that the money saved will be spent on new products. Thus the next issue *privatization of the environmental crisis* is also needs to be kept in mind. Individual consumers are (rightly) blamed for much of the problems of consumption, but behind them is a larger system that is at the roots of these problems and which constantly works to reinforce the pattern of consumption. If left to corporations, green products will allow consumption to grow in an upwards spiral and the problem of *consumption* remains, which leads us to the third problem, namely “*green washing*”. There is an enormous potential for manipulating the market of green products, a problem that could, as I noted earlier, be solved by enhanced producer responsibility in the form of transparency and disclosure. However, this is so far not the case and marketing specialists have recognized the increased awareness from consumers who want to buy ecological products and live a healthy life style. This demographic group has been labeled LOHAS by the advertizing business, short for Lifestyle of Health and Sustainability and represents the segment that is targeted especially for green products. The LOHAS segment is the group that is closest to living by ecologically sound standards, but this group is also signified by a trait that can stand in the way for the real

¹²⁷ Italics by me

fulfillment of this goal; their focus on *personal fulfillment*. The LOHAS group is often well educated and with a good economy which means that despite their focus on sustainability and ecology, they tend to also fall into the segment of *conspicuous consumers*, i.e. consumption that is spurred by ever changing needs for “variety, fashion and luxury.[sic]”¹²⁸ These three characteristics are important to consumers because they are statements of who you are, and this to me is one of the main obstacles that stand in the way of developing a genuine ecological awareness: *consumption as a shaper of identity*.

3.5.3. Consumption, Identity and Well-Being

The AMC hit show *Mad Men*, set in the Sterling Cooper Advertising Agency in 1960s New York City, brilliantly depicts the advent of advertising as we know it today. Don Draper, the star of Sterling Cooper, explains the business like this: “Advertising is based on one thing, happiness. And you know what happiness is? Happiness is the smell of a new car. It's freedom from fear. It's a billboard on the side of the road that screams reassurance that whatever you are doing is okay. You are okay”¹²⁹

Don Draper not only describes his profession, he concurrently describes the roots of our ecological problem, namely *personal well-being as a commodity*. Robert Brulle refers to Jürgen Habermas who has identified two values that are essential to adapting the self of the modern personality to the market: consumerism and possessive individualism. These two lead to an “unending quest for consumption in an anxious search for social status [...] where the good life will be found in the next commodity.”¹³⁰ Advertising sells feelings more than it sells products – contentment through purchases. The result of advertising’s success in making material possessions a yardstick for personal success has reduced the significance of the *need* for the products we buy, where its value now resides in the quality it adds to the person who possesses it. This principle is of course not new; buying power has at all times enabled people to buy social status; in 1899 Thorstein Veblen criticized this kind of consumption for being “largely of a ceremonial

¹²⁸ (Speth 2008, 153)

¹²⁹ (House 2008)

¹³⁰ (Brulle 2000, 41)

character,”¹³¹ and thanks to an “enormous and enormously sophisticated marketing apparatus”¹³² conspicuous consumption shows no sign of declining.

That “consumption” connotes such a wide set of issues aside from the actual act of buying things makes it a complicating issue on the way to establishing a green economy. A question that comes to mind after reviewing the different sides to consumption is whether any economic system, however good, will be effective in making economic growth ecologically sound, *unless it is based on the principles of ecological awareness*. It is hard to see how; the possessive individualism that characterizes the modern self makes it hard to imagine how a genuine environmental ethic can develop; environmental awareness requires a willingness to think in broader terms than personal well-being, to imagine and take responsibility to avoid future repercussions of personal behavior and to appreciate the inherent value of nature and its species, not just as means to human ends, but also in a non-utilitarian fashion. A functional consumer ethic would therefore involve a new set of parameters for our expectations of what constitutes a good life, and as mentioned earlier; though the United States is not going back to peasantry, the Indian environmentalism that Guha refers to may be a guiding light in the way there.¹³³

Chapter 4. Case Study – Renewable Energy in the State of Iowa

The renewable energy industry (REI) in Iowa constitutes one of the most interesting examples of a greening economy in the United States. Iowa has over the past years embraced progressive and comprehensive policies to integrate clean energies into the state’s accumulation base, and after extensive efforts to encourage development in the renewable energy sector Iowa is today one of the country’s leading producers of alternative energy. These so-called green energies thus constitute an important base for economic growth in Iowa and are, as we will see, bringing with them both advantageous features as well as inherent problems.

This chapter first gives a brief presentation of the federal government’s failure of developing an ecologically sound economic growth in the U.S. Next it highlights important features in the Iowan economy, such as main industries, unemployment

¹³¹ (Veblen 2007 (1899), 43)

¹³² (Speth 2008, 156)

¹³³ See “How Can Support Be Mustered for a Sustainable Economy?” on page 30

figures etc, in order to identify segments that are of importance to the growth machine. I then go on to identifying some of the actors in the growth machine and how the machine operates in Iowa. In order to determine whether there is in fact a movement towards an ecologically sound growth in Iowa I draw up five criteria for what such a model would look like; in sum these criteria form what I choose to call the *ecologically prudent growth model* (EPG). By reviewing some of the causes and effects of the REIs, I then look for signs that the growth machine in Iowa is undermining the standards set for the model. Last I analyze a case to build a new coal plant in Marshalltown, IA. The analysis Last I draw some conclusions about the future possibilities of the EPG.

4.1. Alternative Energy and the American Economy

4.1.1. History: The Failure of the Federal Government to Develop a Sustained Renewable Energy Policy

American interest for alternative fuels was spurred by the 1973 oil crisis as the incident made two things evident: American consumption patterns had made the U.S. critically dependent on foreign resources, leading to a second realization; resource dependency had become a serious threat to national security.¹³⁴ To counter this threat President Richard Nixon introduced “Project Independence”¹³⁵ which declared that the United States would be energy independent by 1980, and in the Nixon years much R&D was focused on the search for energy alternatives. His administration was also responsible for establishing the Environmental Protection Agency, (EPA) and the 1970s became a period of sweeping environmental reform, making the United States an international spearhead for progressive environmental policies.¹³⁶

¹³⁴The 1973 oil embargo was imposed by the Organization of Arab Petroleum Exporting Countries (the Arab coalition within the OPEC) as a reaction to U.S. support of Israel during the Yom Kippur War. The block created a fear within NATO of high oil-prices and supply instability, and many European countries started distancing themselves from American Middle-East policies. The OAPEC embargo lasted until March 1974 and since then energy independence has been an important part of the American political agenda.

¹³⁵ (U.S. Department of Energy 2010)

¹³⁶ It is important here to note that the “legitimation imperative” was what allowed the environmental groups such tight access to the sitting administration. Struggling to meet the demands from the radical political climate of his opponents, while at the same time showing his adherents that he did not give in to the controversial social groups, Nixon saw in the environmental movement a way to pacify both sides. (This despite the impression of first head of the EPA, William Ruckelshaus that Nixon found environmental issues to be “faddish”.) (Dryzec og et.al., Green States and Social Movements 2003, 34)

Unfortunately the country did not hold this position for long: by the end of the decade American energy consumption had exceeded previous levels, the fear of energy scarcity had subsided from public awareness, and the 1980s became a decade where environmental organizations were excluded from decision making processes – at times experiencing hostile opposition from the Reagan administration.¹³⁷ Some of the 1970s environmental mandates, like abatement of emissions for automobiles, were reversed in the Reagan years, and reactions to environmental damage again became remedial rather than preventive. Without support from the federal government the United States quickly started lagging behind on environmental issues, including the search for alternatives to fossil fuels. Refusing to sign international agreements to deal with ecological decline, the country fell further behind when other nations started investing heavily in renewable energy, and at a federal level there has been limited interest to invest in renewable energy to expand the U.S. economic growth.

The Clinton years offered a swing in the direction of viable American environmental politics and the administration appointed several well-known environmental activists into its staff and in governmental agencies. The inclusion turned out to be a disappointment for many environmentalists as other political concerns often outweighed the environmental agenda. Since it took office, the Obama administration has had energy independence and issues of climate change on the table. In his address at the Copenhagen Obama said that “[America] will transform to a clean energy economy... We are convinced that changing the way that we produce and use energy is essential to America's economic future – that it will create millions of new jobs, power new industry, keep us competitive, and spark new innovation.” Clean energy is now seen as a competitive advantage by the administration and the *tone* has changed since his predecessors were in Rio and Kyoto respectively; Obama continued by saying that “America is going to continue on this course of action no matter what happens in Copenhagen. But we will all be stronger and safer and more secure if we act together. That is why it is in our mutual interest to achieve a global accord in which we agree to take certain steps, and to hold each other accountable for our commitments.”¹³⁸ The diplomatic approach is also a move away from the unilateralism that often hallmarks the

¹³⁷ (Dryzec og et.al., Green States and Social Movements 2003)

¹³⁸ (The White House 2009)

U.S. in matters of international importance.¹³⁹ Yet, despite the President's personal commitment and concern about climate change, he has not managed to muster support for climate change legislation, and also failed to pass the prestigious cap-and-trade bill.¹⁴⁰ In the midterm elections this November, the Democrats lost Congress to the Republican Party, and due to the difference in opinions and the strong partisanship, it therefore seems unlikely that any great environmental reforms will pass within the next few years.¹⁴¹

4.1.2. **State, Local and Private Initiatives**

Despite, or perhaps because of, the lacking interest from the federal government to support renewable energy development, the last decade has seen extensive efforts by state governments to implement this sector into state economies, with photovoltaic energy, wind and biofuels constituting the three largest renewable energy sectors. Also at lower administrative levels, as well as in private homes alternative energies are being tried out; traveling around in the country meeting with "green" entrepreneurs, venture capitalists and university directors, Thomas Friedman commented that he came away with a feeling that "the United States is really primed for a Code Green revolution."^{142/143} Several American states are attempting to adopt "feed-in-tariffs"¹⁴⁴ to encourage implementation of renewable energy and state administrations are joining forces to urge national renewable energy standards.¹⁴⁵ Despite lacking federal support California now covers 35 % of its electricity demand through renewable energy, with

¹³⁹ See The Democratic Climate on page 33

¹⁴⁰ (Goldenberg 2010)

¹⁴¹ See Distrust and Legitimacy on page 37

¹⁴² (T. L. Friedman 2009, 374)

¹⁴³ "Code Green" is Friedman's adaption of the Code Red, the 1950's America's symbol for the Communist threat. "Code Red" was also used as a symbol to mobilize the country in defense of the "free world", and Friedman's "Code Green" is a call to mobilize America to become a world leader in "clean power, energy efficiency systems, and an ethic of sustainability" page 57 in *Hot, Flat and Crowded*.

¹⁴⁴ Feed-in tariffs are policy a policy mechanism designed to encourage the adoption of renewable energy sources and to help accelerate the move toward grid parity. A report by Rickerson, Bennhold and Brandbury show that several states have adopted, or are considering to, feed-in tariffs, and there are also increasing numbers of proposals to adopt them at a federal level. The report concludes that *"the emergence of feed-in tariffs in the US represents a dramatic shift in the policy landscape and could signal the beginning of a new trend of more aggressive renewable energy policies at the national and state levels."* (Rickerson, Bennhold og Brandbury 2008) See also report by REN21 (Renewable Energy Policy Network for the 21st Century 2009)

¹⁴⁵ Iowa's governor Chet Culver holds the chair in the Governors' Wind Energy Coalition, a bipartisan partnership of American governors "dedicated to the development of the nation's wind energy resources to meet America's domestic energy demands in an environmentally responsible manner — while reducing the nation's dependence on imported energy sources and stimulating state and national economic development" (Governors' Wind Energy Coalition 2010)

states like Texas and Iowa following alongside: In short it is not unreasonable a hypothesis to suggest that the renewable energy sector constitutes an important base for economic growth.

4.1.3. **Growth, Energy, and the State of Iowa**

Iowa is a scarcely populated state with a population of under three million people. The state has one of the slowest population growth rates in the U.S. and projections from the U.S. Census Bureau estimate that the number of inhabitants will remain fairly steady over the next twenty years.¹⁴⁶ However, as is the trend in most parts of the world, so is Iowa is experiencing increased urbanization. The distribution of people thus changes, in turn shifting for instance the energy needs from one location to another. As seen in other industrial regions manufacturing jobs have been declining drastically in Iowa over the past decades, Iowa lost 20.000 manufacturing jobs in 2009¹⁴⁷, John Deere for instance is cutting 1600 people from their payroll¹⁴⁸ and the unemployment rate in the state is today 6.8 %. The drop was rapid; still this number is 2 % percent below the country average and in other words closer to the 5.5 % rate that is considered “ideal” in that it secures a steady acceleration of inflation.^{149/150} Regardless, job insecurity is one of the most debated topics of in the media, among people I have interviewed as well as in the current gubernatorial election, thus it is no understatement to say that growth is one of the most widely shared causes in the Iowa, as it is in the rest of the modernized world.

Aside from manufacturing, the most important industries in Iowa are meat production, corn production and alternative energy. The pork industry contributes 220,000 jobs, with an economic output of over \$37 billion, generating close to \$ 1.2 billion in state and sales taxes.¹⁵¹ 93 % of Iowa’s crop harvest constitutes of soybeans and corn (40/53%)¹⁵². Corn grown in Iowa has traditionally been exported directly out of the state, but ethanol plants have enlivened the rural economy by processing the harvest locally. The ethanol industry is thereby giving direct payments to land owners and investors, and is seen as positive because it helps sustain the overall economic activity

¹⁴⁶ (Iowa Work Force Development 2010)

¹⁴⁷ (Iowa Policy Project 2010)

¹⁴⁸ (Iowa Public Television 2009)

¹⁴⁹ (Iowa Work Force Development 2010)

¹⁵⁰ (Gordon 1988)

¹⁵¹ (Meat Fuels America 2010)

¹⁵² (Swenson, The Economic Impact of Fruit and Vegetable Production in Southwest Iowa 2010)

in the state.¹⁵³ The transition from direct export to local manufacturing has made Iowa the nation's largest producer of ethanol.

Alternative energy production is present but still a much smaller part of the economy. Numbers from the Iowa Office of Energy Independence show that 2,300 Iowans have employment through wind manufacturing, and that the state leads the nation in wind generation as a percent of total power: 20 percent of the state's energy generation comes from wind. More than 200 Iowa companies in 26 counties are supplying the wind industry, generating more than \$50 million in new revenue for Iowa companies annually. Governor Culver's \$100 million Iowa Power Fund has been the engine for growth in this industry and is dedicated to promoting and bolstering Iowa's wind industry through funding research and development, early commercialization, and innovation that will help the market transform to this new industry. Growing interest in wind power has also prompted Des Moines-area leaders to consider a uniform ordinance to provide consistent regulation of small-scale wind energy turbines in residential areas. Inquiries about wind energy ranked in 2008 among the top three requests for information fielded by the American Planning Association, a nonprofit organization that represents urban planners and community development leaders across the United States.¹⁵⁴

Within Iowa the above mentioned renewable energy industries have thus offered ways to circumvent the economic decline that often hit supply regions. Joe Jongewaard, Project Manager with the Iowa Department of Economic Development: *"We believe that there is a huge expansion in manufacturing capacity of wind generation equipment and that it's going to happen somewhere in the world over the next 3 to 4 years...Iowa is positioned to get more than its share of that expansion. We believe that it's reasonable to expect that 10,000 manufacturing jobs could be created in Iowa by the end of 2014."*¹⁵⁵ The lofty goals of State leaders to become a renewable energy leader make the Iowa economy an interesting case to study in terms of "greening of the economy." Simultaneously these emerging industries also make Iowa a viable case through which I can test if a new ecologically sound growth model is emerging.

¹⁵³ (Swenson, The Economic Impact of Ethanol Production 2008)

¹⁵⁴ (Pulliam og Olson 2009)

¹⁵⁵ (Trabish 2010)

4.2. Iowa as a Growth Machine

“I speculate that the political and economic essence in virtually any given locality, in the present American context, is *growth*.[...] growth is the overriding commonality among important people in a given locale [and] the very essence of a locality is its operation as a growth machine.”¹⁵⁶

This is how Harvey Molotch introduces his theory of the growth machine and Iowa is no exception to Molotch’s rule; the state economy works also here through the interaction between local elites, government and auxiliary players who share a common interest for growth.

4.2.1.1. Local Elites

According to Molotch’s theory the growth coalition consists in disproportionate numbers of those who have the greatest economic gain from controlling land use. This leads to centralized decision making processes where prestigious businesspeople and professionals, i.e. the *local elites*, make mutually beneficial resolutions at the cost of other local groups. This is true also in the Iowa economy where major players in the energy and agricultural sectors steer much of the development.

One of the major elites is locals with interests in the pork industry. Iowa is the number one pork supplier in the U.S. and thus the pork industry constitutes one of the most influential elites in the state. most of this production is concentrated on what is commonly referred to as “factory farms”; in 2007 each of Iowa’s pork suppliers owned an average of more than 3600 pigs (up from 1400 since 2003) and in interviews for my case study, these numbers were brought up by the environmental organizations as a major concern.^{157/158/159/160} A report by Center for Agricultural and Rural Development at Iowa State University also states that “there is a concern that the increased concentration of the [pork] industry may be accompanied by an increased risk of environmental damage due to manure spills and further degradation of local air quality as the result of odor emanating from large-scale hog facilities”. The report further

¹⁵⁶ (Molotch 1976)

¹⁵⁷ Because livestock farming at this scale is performed in a way that resembles modern factory manufacturing, I use the term “factory farm” to describe the phenomenon, though I am aware that it is a somewhat hyperbolic sounding term.

¹⁵⁸ (Iowa Pork Producers Association 2007)

¹⁵⁹ (Hoover's Inc. © 2010)

¹⁶⁰ (Herriges, Secchi og Babcock 2003, 1)

comments that a problem “facing both regulators and the judicial system is that little information exists on the extent of damages caused by livestock facilities, making regulation and assessment of damages in civil suits that much more difficult”¹⁶¹. Having in mind the numbers presented in the beginning of this chapter the inability or unwillingness to acquire information about the environmental effects of hog farming can rather easily be explained by Molotch’s analysis of the growth machine can help explain why; generating more than \$2.1 billion in state taxes and over 200.000 jobs, the pork industry is one of the most important areas through which the state government can fulfill its two imperatives of growth and legitimation. On the one hand, by failing to pass regulation that will prevent environmental damage from hog farming, the government risks the environment and loses the kudos of green advocates and the global civil society. If, however, the large number of jobs and tax revenues connected to the pork industry were jeopardized as a result of environmental regulation the very legitimacy of the state government in the eyes of the citizens of the state would be called into question.^{162/163}

Of other elites that have grown increasingly stronger are Iowa’s corn producers, many of which have leaped from food to fuel production within a short period of time. The change was embraced for its potential to enhance economic growth, ethanol could be produced within the state and thus creating a higher direct income for producers and for the state. In addition the ethanol production would contribute to energy independence and unlike the pork industry’s detrimental effects on the environment; biofuels would also have a positive effect on atmospheric carbon levels. Unfortunately the changing nature of the agricultural production soon displayed the risks of linking energy security to the threat of climate change. Corn is a highly resource demanding crop that is dependent on nitrogen enhanced soil in order to maximize its yield. The nitrogen percolates into the earth and is mixed into the ground water. This process is aggravated by systems of subterranean tiles and drains — 98 percent of Iowa’s arable fields are tiled — that accelerate field drainage into ditches and local watersheds. As a result,

¹⁶¹ (Herriges, Secchi og Babcock 2003, 1)

¹⁶² *Growth, Energy, and the State of Iowa* on page 51

¹⁶³ Growth and legitimation are the two main imperatives of a state, and the two are often in conflict. By failing to pass regulation that will prevent environmental damage from hog farming, the government risks its legitimacy, i.e. right to exist. However, due to the large number of jobs connected to the pork industry the risk is greater if these jobs become jeopardized due to environmental damage.

loadings of nitrogen and phosphorus seep into the Mississippi. The contaminated water continues to the Gulf of Mexico where it promotes algae growth, starving water bodies of oxygen needed by aquatic life, and enlarging the hypoxic “dead zone” in the gulf.¹⁶⁴ But the effects have also been felt locally; the Des Moines metropolitan region has had to build the United State’s largest extraction system for nitrates to clean the city’s drinking water.

The effects of the agriculture industry are, as shown, potentially severe for the environment, yet it is allowed to continue its large scale pursuit for economic growth; the industry even receives subsidies to finance their business. This is a strong indication that the local elites are hard at work shaping government agencies to make growth patterns fit the objectives of the coalition, i.e. it is operating like a growth machine.

4.2.1.2. **Transnational Companies**

The biofuels industry in Iowa is mainly a prolonging of the already existing agricultural sector and thus much of this industry is bound to Iowa in geographical terms. Despite some foreign investments in the biofuels industry in Iowa, it is somewhat still a part of a more traditional trade model, and attached to geographical space.”¹⁶⁵ The opposite is true of the wind power industry; wind generated power is the fastest growing renewable industry sector in Iowa and it is to a large degree dominated by direct foreign investments. This is caused by the transnational character of modern capitalism and the effect is reduced accumulation of wealth that the local elites traditionally have thrived from, though they of course still benefit from the intensified land use. In his 2010 article “Green Economy Is Not Yet Made in U.S.A.”¹⁶⁶ New York Times’ correspondent Louis Uchitelle makes a point of the fact that Europe and Asia have been leading the development of renewable technology, and that they are therefore the ones that benefit from the tax credits that are given by the federal government. In Iowa Spanish owned Acciona and Danish company Vestas are both among the leading manufacturers of wind turbines and has assembly plants for wind turbines in Iowa, while the turbine parts are produced abroad. These companies benefit, as Uchitelle remarks, from American tax credits; in addition the multinational character of production makes the role of the government increasingly problematic. Because the companies are TNCs which spread

¹⁶⁴ (Runge 2010)

¹⁶⁵ (Logan og Molotch 2007, 254)

¹⁶⁶ (Uchitelle 2010)

production over several countries, the manufacturing process is no longer tied to a single location. If the government wishes to tax “their” company, the corporations then have several ways of manipulating their accounts through the various countries it operates. Transnational companies are therefore less likely to offset the same tax revenues in the manner that for instance the pork industry does. Some states have applied what is called unitary taxation, through which companies are taxed based on their global economic activity proportionate to the activity it performs within the state, though this is not the case for Iowa.¹⁶⁷ The foreign dominance of the Iowan wind power industry is however diminishing; Iowa based TPI Composites has entered a deal with GE Energy to manufacture blades for GE’s wind turbines and the same is the case with solar panel manufacturing for other companies.¹⁶⁸ However, rising incomes from taxation of the wind power industry are not inevitable; Logan and Molotch note that “transnational firms are becoming less ‘American’, and in other words increasingly multinational, with the same benefits from multiple production sites and mail-box addresses.”¹⁶⁹

4.2.1.3. The Government

Much of growth mobilization efforts involve government, and according to Molotch and Logan “local growth elites play a major role in [...] scrutinizing politicians and “watch dogging” administrative details [sic]” and they identify *growth*, obviously not as the only, but as the key role of government.¹⁷⁰ Local utilities and land owners are combining efforts to create growth through the renewable energy sector, which has been heavily supported by the state government which, through its Energy Independence Plan aggressively promotes renewable power industries.¹⁷¹

The mobilized interests for growth and legitimacy are maintained through the interdependency between the local government (for campaign funding) and the local business people (on lenient taxation and beneficial regulations.)¹⁷² It was interesting therefore to look at how the campaign funding in the last and current gubernatorial elections was distributed among the different energy sectors. When tracing the 2006 campaign funds of Iowa’s Democratic Governor Chet Culver there is little that indicates

¹⁶⁷ (Aubon County, Iowa 2010)

¹⁶⁸ (TPI Composites 2010)

¹⁶⁹ (Logan og Molotch 2007, 250)

¹⁷⁰ (Logan og Molotch 2007, 63)

¹⁷¹ (Iowa Office for Energy Independence 2009)

¹⁷² (Fainstein, Fainstein og Armistead 1983)

that he has been in great debt to land owners or businesses that would benefit from lenient environmental regulations.¹⁷³ Analyzing the numbers more closely, there are some signs that this is changing for the 2010 campaign. A small shift is seen in the donations from agricultural coalitions which by May 2010 have increased their contributions by \$40,000, from the \$65,000 total in 2006. Another group that Molotch points to as an important interest group in the growth machine is realtors, but so far their 2010 donations are behind \$80,000 from last election. The biggest change from 2006 seems to appear in the cluster of sponsors labeled “Energy and Natural Resources”, where six months before the election; these donations are already up almost \$60,000 from 2006.¹⁷⁴ Due to Culver’s strong commitment to the wind energy sector this is hardly as a surprise, but a closer look at the names behind the numbers show that it is the biofuels industry that contributes most of these funds. In addition it is an interesting point that their owners/managers belong to the opposite side of the political spectrum.¹⁷⁵ There is no contradiction in this, however. The members of the growth machine do not need to share the same values in other aspects of life, but are mobilized through the common goal of economic growth. The IOEI’s biofuels strategy emphasizes the great number of jobs that the business will supply the region with; however, it seems evident that the office is trying to tone down this industry for the future.

4.2.1.4. **Statesmen for Growth – Media and Utilities**

4.2.1.4.1. **The Role of the Media**

The media is highlighted as an important aid to the growth machine. “The metropolitan newspaper is the most important example of a business which has its interest anchored

¹⁷³ The unitemized contributions only contributed 0.04 % of the total budget, which equaled a little over \$3,000 out of the close to nine million dollars that were raised and are thus unlikely to play a “hidden role” in the funding. Of course there might be larger numbers disguised as “after party cleaning” or “office maintenance”, but the limited size and resources of this study must leave these numbers unrevealed.

¹⁷⁴ (National Institute of Money in State Politics 2006)

¹⁷⁵ What is worth noting is the top three contributors, who donate the lions share in the “Energy and Natural Resources” group. Among them is Bruce Rastetter, president of Hawkeye Energy Holdings, Iowa’s largest ethanol producer and the third largest in the nation. Rastetter was formerly the CEO of Heartland, the U.S.’ 13th largest pork producer, and is an advisor to Altenergy. His role in Altenergy reveals Rastetter’s close relationship to the number one “energy-sponsor” for Culver’s campaign, Russell M. Stidolph. Stidolph is the founder and serves as managing director of Altenergy, and together with Rastetter, Stidolph is part of a group of four people who serve as that company’s strategic team. (Altenergy LLC 2010) An additional comment can be made about Rastetter: he is a member of the GOP (Culver is a Democrat), and it has been speculated if Rastetter will run for the office of governor, something that has worried environmentalists because of “his tremendous amount of gravitas on renewable fuels and agriculture issues”.

in the aggregate growth of the locality.”¹⁷⁶ Media is committed to growth to survive because their financial status depends on it, and its emphasis on growth is something that (the rest of) the growth machine can unite around. Newspaper editorials have typically been supportive of “the ecology”, but “tend nevertheless to support growth-including investments for their region.”¹⁷⁷ Newspapers tend to support “good planning principles” that encourage sustainability, but Molotch warns that these principles should not be confused with “limited growth or conservation”.

There is no doubt that renewable energy is high up on the agenda in the Des Moines Register, but there is a clear distinction in the focus from the opinions of the editorial staff and the business staff. The editorials are, in almost every instance, positive towards renewable energy industries and the continued exploration of these opportunities in Iowa, i.e. “supportive of the ecology”. However, both conservation and ecology is also promoted in terms of economic growth and the “good planning principles” that Molotch mentions. The business section on the other hand seems to be more directly opposed to “green growth” through the renewable energy sector. The future of renewable energy as a sustainable option for economic growth is questioned and several opinion blogs from the business section’s staff outright warn against the economic disadvantages and uncertain future for renewable energy in Iowa. “It is not clear if the potential growth [of green jobs] will ever be a major factor in the state’s employment”¹⁷⁸. On several accounts the business section also emphasizes the reluctance in the rest of the country to “think of Iowa and its wind the way the nation for decades has thought of Texas and Oklahoma as a source for fossil fuels.”¹⁷⁹

The duality of the media displayed in the differences in opinion between the business sections and the editorials correspond to Molotch’s theory; and prove that the media directly and indirectly are “statesmen for growth”.

4.2.1.4.2. Utilities

In the growth machine, utilities have almost the same limitations as the local media; tied to a single locale they also become “statesmen of growth” because the only way they can grow is to widen their customer base. Without new customers they are also unable

¹⁷⁶ (Molotch 1976, 315)

¹⁷⁷ (Molotch 1976, 316)

¹⁷⁸ (Brasher og Eller 2009)

¹⁷⁹ (Piller 2010)

to prove to investors that they have potential for further expansion, and Molotch say that “Overall efficiencies are often sacrificed as a result.”¹⁸⁰ In Iowa the two largest energy utilities are MidAmerican Energy, one of America’s largest and most aggressive developers of wind generated power,¹⁸¹ and Alliant Energy-Interstate Power and Light Company, also committed to renewable technologies, but as this case shows, Alliant still advocates for expanding coal energy production. A third major utility is Hawkeye Energy Holdings, Iowa’s largest ethanol producer.

In Molotch’s analysis business councils are controlling politics by large donations to election campaigns, as is of course individual companies such as Alliant. Thomas L. Aller, president of Alliant Energy is also chair of the Iowa Business Council (IBC), which mission is “to engage the personal commitment of its executive members in active leadership roles on major initiatives that offer opportunities to enhance Iowa’s overall economic vitality.”¹⁸² Tracing campaign donations for the gubernatorial election in 2010 there is little to indicate that the neither IBC nor Alliant fit this description; the IBC did not make any campaign contributions and Alliant donated a fairly small amount; \$1.500 to the Democratic campaign, in addition to Tom Aller’s private donation of \$5.000. What is interesting however is that Hawkeye Energy Holdings, which ranked among the top three of the “Energy and Natural Resources” contributors to Chet Culver in the 2006 election now has switched sides, and in 2010 its president, Bruce Rastetter, under the label “Miscellaneous Energy,” donated close to \$124.000 making him the number three overall contributor to the Republican campaign.”¹⁸³ MidAmerican Energy is also a large contributor and is one of the top donators to the Democratic incumbents.¹⁸⁴

The facts displayed above reveal that the mechanisms in the growth machine are at work, and based on that information we might assume that environmental concerns are likely to be sacrificed for the benefit of growth. However, the *sources* for economic expansion are increasingly derived from “green industries” like wind and (to a lesser degree) biofuels. The remainder of this chapter therefore attempts to set some criteria

¹⁸⁰ (Logan og Molotch 2007, 74)

¹⁸¹ (Osterberg og Galluzzo, Think Wind Power, Think Iowa 2010)

¹⁸² (Iowa Business Council 2007)

¹⁸³ (National Institute on Money in State Politics 2010)

¹⁸⁴ (National Institute on Money in State Politics 2010)

for what an ecologically prudent economic growth would look like, and apply it to the case of Iowa in order to display its essential possibilities and challenges.

4.3. What will an Ecologically Prudent Growth Model (EPG) look like?

Economic growth provides great opportunities for those who are affected by it, but that fact cannot cover its obvious negative consequences to the natural environment; growth affects the air and water quality, as well as decreases biological diversity and destroys the aesthetic attributes of natural landscapes. It has been revealed that these “blows to the physical environment”¹⁸⁵ have left most damage where economic expansion has been rapid, thus an ecologically prudent economic model will have to have as its base “good planning principles,” meaning that individual short-term decisions should support long-term goals.

The previous chapters of this study have reviewed impacts of economic growth on the environment, and discussed if and how growth can meet and heal the damages it is causing to the environment. Reviewing these chapters I conclude that an ecologically prudent growth model (EPG) will have to include the following: 1) development and expansion of all areas of the economy will have to base decisions on the *precautionary planning principle* which describes a willingness to go into depths to reveal possible future negative effects from growth, and then refrain from the economic activity if the consequences to the natural environment are uncertain or unacceptable. 2) Corporations must be subject to regulations that demand *transparency* in the entire production chain. The transnational character of many companies is a significant limitation to comprehensive enforcement of environmental regulations. By making corporations carry the burden of evidence for proving that raw materials and pre-manufactured components used in production are ecologically sound, government agencies can more easily ensure that products comply with the environmental standards in the countries where they are sold.¹⁸⁶ 3) Furthermore, increased producer accountability should be

¹⁸⁵ (Logan og Molotch 2007, 95)

¹⁸⁶ There is an ongoing debate in the World Trade Organization (WTO) about this principle, dubbed the “process versus product issue”. In basic terms the principle prevents WTO member countries from banning products manufactured in other member states on the basis of disagreement over *production process*. Such bans can only be implemented if the *quality* of the imported product can be proven to be of a lesser standard than the equal item produced domestically. In practical terms this means that a WTO member state cannot refuse to import commodities produced in ways that are harmful for the

applied through *extended polluter responsibility* (EPR), also known as the *polluter pays principle*. EPR forms a basis for environmental regulation that can transfer the cost of *negative externalities*¹⁸⁷ from the government (and thus taxpayers) to those responsible for the pollution.¹⁸⁸ 4) *Strict enforcement of environmental regulations*. This latter point is central for the EPG, here illustrated by James Gustave Speth in a simple mathematical exercise; if 80 % of a problem is dealt with through regulation, and 80% of those regulated try to comply, and 80% of these efforts are successful: $0,8 \times 0,8 \times 0,8 = \text{over } 50\%$ percent of the problem remains unsolved.¹⁸⁹ Thus my next point becomes crucial, namely 5) to *eliminate the strong connection between government and corporations*. As Molotch's growth analysis shows, the dependency of politicians on donations from local elites constitute a significant problem in maintaining a necessary distance to the corporate world. Unbiased decisions are crucial when environmental concerns are tried against the growth imperative, and EPG will not be a feasible option without this prerequisite.

The five points above outline the possible contours of an ecologically sound operating system for growth; in order to make a significant turn away from unsustainable economic growth an ecologically prudent growth model will have to be put into operation.¹⁹⁰

environment unless it can prove that the same product, produced domestically, is of better quality. Thus WTO regulations render commercial interests to take precedence over environmental protection.

¹⁸⁷ Environmental costs which are external to the firm.

¹⁸⁸ J.G. Speth presents an example from Germany that shows how such measures can be extended; by shifting tax-burdens from things that the government wants to encourage, such as work and wages, onto practices they wish to discourage, such as pollution and energy consumption, thus using economic instruments to encourage change. See (Speth 2008, 94)

¹⁸⁹ (Speth 2008, 84)

¹⁹⁰ Can growth be ecological? Is progress always good? Growth is criticized by Molotch in his theory about urban development, and it is hard to disagree when we see the detrimental effects to the environment; however Molotch's uncompromising disapproval of growth is limiting his theory into being an interesting point of view, but it yields little value in solving the problems it condemns. It criticizes without offering any solutions and I therefore believe that the critique does not constitute a constructive way of revolutionizing a system that revolves around the growth machine. Molotch says that "although they may differ on which particular strategy will best succeed; elites use their growth consensus to eliminate any alternative vision of the purpose of the local government or the meaning of community."¹⁹⁰ I do not argue that a system of unlimited growth is constructive, but I will say that growth can also bring about solutions. Economic growth has moved away from being an exchange between money and manufactured goods; it is all the time more about commoditization of services, experiences, adventures. Hence economic growth has the potential of yielding results without depleting the remaining natural resources. Intensified resource use also yield larger numbers of items from the

4.3.1. **EPG and the Renewable Energy Industry x**

The renewable energy industry is, as mentioned, the most prevalent indication of a turn towards a greener economy in Iowa. Commercial production is primarily divided between biofuels and wind power, but there is also an increasing interest for photovoltaic energy; the Power Fund has amongst other things financed a large research project at Iowa State University to drive the PVE development ahead.¹⁹¹ Undoubtedly the renewable energy forms are ecologically benign compared to their fossil counterparts, but how well do they match up to the criteria for the EPG? In many regards they do quite well; by replacing gas and coal with PVE, wind or bio power suppliers are far on the way at removing the connection between economic growth and ecological degradation. As a result these energy forms also fulfill the precautionary planning principle that is a prerequisite in the EPG model. By the nature of their products REs are also, in theory, exempt from the polluter pays principle as GHG emissions are eliminated when REs replace fossil fuels. In many regards renewable energy will also remove the need for strict environmental regulations and demand for transparency, because they comprise a benign replacement for the products and processes that those measures are aimed at. The strong connection between politics and corporations should also be less of a worry in this new regime; the government is sponsoring corporations to help fulfill energy policy goals, thus corporations are in debt to the government and not the other way around. Summed up, the commendable features of the REs seemingly prove that Iowa is starting to adopt an EPG economy, yet, as I will explore in greater depth below, several factors also speak against this assessment.

4.3.2. **Beginning Movements towards an Ecologically Sound Economy in Iowa, or, Iowa as EPG case study**

- An argument can be made that Iowa is on a green path; the state business establishment, in collaboration with the state government, has over the course of very few years become an authority on wind generated power. However, to become

same amount of resources. This is of little help if people start consuming twice as many articles as before, and it is therefore of vital importance that consumption is limited. But as my previous chapter *Limiting Economic Growth* showed any such attempts must be applied with caution. With careful planning growth can be limited over time, but it requires a system that reduces the feeling of insecurity for citizens in order to maintain social stability. That way it is possible to move towards a discourse where social and ecological responsibility is put before personal or corporate gain.

¹⁹¹ (Iowa Office of Energy Independence 2010)

ecologically sound the economy will have to take a turn towards incorporating the principles of the EPG into its practices. Are there signs that can tell us if the economy is ready for that transition? The following section looks for the answer to this question.

Concrete measures to green the economy followed the Democratic administration entering office in 2007. The administration, led by Governor Culver, established the Iowa Office of Energy Independence (IOEI), charged with the task of developing a plan for the state to become energy independent.¹⁹² One of the most important tools of the IOEI is the Iowa Power Fund. The fund has been under critique for its priorities, it has for instance not distinguished between foreign and domestically initiated programs, however the results are convincing; today Iowa ranks third in the development of wind energy among American states, and Governor Culver has declared a friendly, but no less real, competition with California and runner-up Texas.

A study performed at Stanford University's Civil and Environmental Engineering Department ranks wind as number one among available energy types.¹⁹³ The ranking is based on assessments of wind generated power's benefits and harmful effects. Another article by Jacobson, together with his colleague Magdalena Maria, also points to several studies which also show that the harm inflicted on wildlife by the turbines is smaller than anticipated, and that the net damage is significantly less than with other fuel types. The studies do not include the economic prospects of wind energy, but evaluate energy production from an ecological viewpoint. The latter study determined the atmospheric effects of large wind farms and found that there was a local energy loss in L1 layer¹⁹⁴ over the wind farms, but it concludes that *"Any heating effects of this energy loss is outweighed by the thermal pollution that it will avert when wind farms displace the thermal power plants driven by fossil fuels. In sum, the energy losses due to wind turbines, while high immediately downwind of a turbine, are quite small when averaged over large geographic regions, even if the entire world were powered by wind."*¹⁹⁵

¹⁹² Energy independence in Iowa is of course also a matter of national security, but the main imperative of this project is to establish an independent energy economy in Iowa. Iowa's energy consumption was expected to rise drastically compared to the rest of the U.S. and this spurred the initiatives from the state governing bodies.

¹⁹³ (Jacobson 2008)

¹⁹⁴ The L1 layer is the atmospheric boundary between the troposphere and the stratosphere. The distance between these layers can be changed by radiative forcing from wind turbines which again alters the L1 net irradiance, i.e. the difference between the incoming radiation energy and the outgoing radiation energy in the climate system. (U.S. Environmental Protection Agency 2009)

¹⁹⁵ (Maria og Jacobson 2009, 836)

Other studies also concur with Jacobson's findings, leaving wind energy to be an ecologically sound means for economic growth.¹⁹⁶

That Iowa now is one of the leaders in wind generated power is a great step towards a more ecologically benign economic growth, and forecasts say that this industry will continue to generate jobs and business opportunities for years to come.¹⁹⁷ Wind energy is thus a sector where the government and the corporate world can unite around their shared interest for growth *without the detrimental effects usually connected to the relationship between the natural environment and economic growth*. That way wind energy fulfills the criteria set for the EPG, even the last of the five which calls for a changed relationship between the business world and the government: Figures from Governor Culver's election campaigns indicate that wind energy makes large donations unnecessary; only small contributions come from this sector. The strong focus from the government of course lessens the need to use monetary means to generate governmental support, but the bottom line here is that the wind energy proves that commercial interests can thrive also in a green economy, and without limiting growth.

4.3.3. **How is the Growth Machine Undermining the Realization of an Ecologically Prudent Growth Model in Iowa?**

However in the "real world" the mechanisms in the growth machine continue to work as they have done, and the wind energy sector is but a diversion from the general pattern of economic growth. The study that ranked wind energy as the number one power source has bio and fossil fuels at the bottom of the list, yet Iowa continues to promote the bio industry as a green industry.¹⁹⁸ The remainder of this chapter thus looks at the ways the growth machine works to undermine these norms.

Some have called the turn towards renewable energy a "new gold rush" as the region increasingly attracted non-Iowans as well as returning natives who wanted to pursue business opportunities in alternative fuels. For land owners that interest presented a golden opportunity to enhance land value, and for the state government it provided a chance to boost the rural economy, in other words: the growth machine apparatus came into action. A rush to fill pocketbooks and state budgets, but the comparison to a gold rush can also be extended; the effects to the California environment was devastating

¹⁹⁶ (Blank, Bird og Swezey 2002)

¹⁹⁷ See footnote 155 on page 52

¹⁹⁸ (Jacobson 2008)

when the forty-niners began their search for gold and a parallel can be drawn to the “energy rush” in Iowa. In the rush to capture these shares several highly damaging consequences of this industry were allowed to develop. Corn and soybeans have traditionally been raised for food production, but the rising oil prices, especially from 2005 and to the 2008 \$120-a-barrel peak spurred cultivation for fuel production. In the urgency to dam up for high gasoline prices the first standard for EPG, the *precautionary planning principle* was ignored. Biofuels as an alternative to fossil fuels yield great environmental advantages in reducing GHG emissions. However, the processes of corn production also leave severe marks on the natural environment; there is an extensive use of chemicals in corn production, substances that seep into the soil and the corn harvest is consequently a threat for bird habitats and local water supplies, but also in more distant places like the Gulf of Mexico. In addition to the negative environmental effects, biofuels production also has a direct effect on human life; corn is the main dietary component for many people around the world and is especially crucial for those living in developing countries. 60 % of the world’s total corn and maize crop is grown in the United States, most of which is harvested in Iowa. Corn has traditionally been used for livestock feed or exported for food, but the turn to renewable energy sent the prices of corn and, as a result of the increased field corn prices, meat skyrocketing, jeopardizing the health and wellbeing of people around the world.¹⁹⁹

As we saw in the example above local elites have continued to advocate the continuation of bio ethanol production despite the cost to the environment. Documents from the Iowa Office of Energy Independence and other state agencies show that there is little willingness to admit and react to environmental damage that is caused by any of the major industries in Iowa and the size of campaign donations suggest a clear link between the two issues.^{200/201} In spite of these harmful consequences, local elites, together with politicians, continue to promote biofuels from corn as a green and sustainable industry. The problematic food issue is being countered by arguments of expected increase in production, and the IOEI stresses that fluxing food prices have several causes. Protesters that object to the environmental effects of ethanol production are being met with arguments stating that many of these damages have not yet been

¹⁹⁹ (Wisner 2006)

²⁰⁰ (Iowa Office of Energy Independence 2010)

²⁰¹ (National Institute of Money in Politics 2010)

firmly linked to biofuels production, and that production therefore will continue.²⁰² As noted prior, the biofuels industry is working to create technology that can extract bio energy from other sources than the food component of the cob, however that does not mean that these parts will cease to be a part of production anytime soon. In fact the logic of the growth machine says that it in all probability will not; the new processes demand more advanced and expensive technologies, and in addition these technologies are less efficient than the production methods that are used today. Another factor is the other elites in Iowa; though it has meant an increase in input, the rise in food prices resulting from the higher cost of field corn/maize has also resulted in a higher output for meat producers, and for instance the influential pork industry is therefore not likely to voice any loud protests against the continued production of biofuels.

Thus the eagerness of local elites and government for growth, combined with the lack of precautionary planning principles prior to the process, therefore exemplify how the growth machine is undermining the principles of the EPG, this in order to attain short term goals of accumulation. The last four principle of the EPG are also be important in the continued expansion of the biofuels industry, though it seems like the realization of the first three principles; *transparency*, *polluter pays* and the *strict enforcement of environmental regulation* are undermined by the very essence of the growth machine, and basis for the fourth principle; *the strong relationship between corporations and government* is therefore likely to go unchecked.

4.4. What Can Be Done to Further the EPG Agenda?

The success of this process is, as I have stressed in the course of my study, dependent on political will to implement the five principles of the EPG into the growth strategy. Cases like the pork and biofuels industry tells us that there is a long way to go, though processes like the Marshalltown coal plant case, evaluated below, provide glimpses of hope that it is possible. The framework of the decision in the Alliant case is interesting because it seems probable that the Marshalltown decision was made partly to benefit a different means for growth than the coal industry.

²⁰² (Iowa Office of Energy Independence 2010)

4.4.1. The Alliant Power Case

In 2008 Alliant Energy and its subsidiary Interstate Power and Light Company (IPL) made a case to open a new coal plant in Marshalltown. The case is interesting as an assessment of the workings of the growth machine in Iowa; many of the major players Molotch identifies as parts of, or auxiliary players to, the growth machine were involved, and because the case related to an expansion of fossil energy, it presented a way to test if the increased focus on alternative fuels would influence the decision in the case, thus perhaps giving an indication about a possible movement towards the EPG.

The Des Moines Register dubbed it the “Case For/Against the Plant” and the negotiations took place in front of the Iowa Utilities Board which’ mission statement presents the IUB’s role as *“a fact-finding body that hears evidence in cases filed before it and makes decisions based on the evidence presented in those cases. An advocate of neither the public nor the utilities, the IUB is required by state statute to make decisions that balance the interests of all parties to ensure the utilities provide adequate and reliable service at reasonable prices.”* In the hearings, Alliant and their supporters met with the consumer advocate, who represents Iowan consumers in matters where the Iowa Utilities Board has jurisdiction, and Plains Justice, a public interest environmental law center.

In defense of coal, Alliant made a claim that the renewable energy sector would need another decade to become a viable option to fossil fuels, and that alternative energy production would continue be heavily dependent on electricity from coal for its production processes; a refusal to expand in Marshalltown would therefore damage this new field economic growth. Daniel Otto, professor of economics at Iowa State University was engaged by Alliant and IPL to support their arguments, and stated that “Developing reliable energy supplies by expanding base-load electric-generating capacity [of coal plants] is important for Iowa to continue capturing growth shares in these emerging alternative-energy industries.”^{203/ 204} Otto’s statement should pose a

²⁰³ (Des Moines Register 2008)

²⁰⁴ Population growth was also a topic in the argumentation; Alliant posed that the state’s estimated population growth would significantly increase the pressure on the electricity grid, and that a decision against building the new coal plant could lead to energy deficiency, which again would pose a security hazard for the people of Iowa.²⁰⁴ At the basis for Alliant’s calculations was the 1.4 % annual increase in energy demand in the country as a whole, and their arguments were thus quickly countered; numbers from the U.S. Census Bureau show that Iowa’s population is the slowest growing in the country and it

valid argument towards the utilities board decision; the state government has put a lot of prestige and money into its visionary energy plan, and though the IUB is “*an advocate neither of the public or the utilities,*” a decision based on Otto’s reasoning could pacify both interests.

When the decision was made this also seemed to be the case; the Utilities Board approved Alliant’s application by a 2-1 vote, which on the surface made it seem like growth had once again trumped environmental concerns. But a year later Alliant announced that they would not build the plant despite the authorization. In the March 5th press release announcing the cancellation, Alliant Energy said that “*The decision to cancel the project is based on a combination of factors including the current economic and financial climate, increasing environmental, legislative and regulatory uncertainty regarding regulation of future greenhouse gas emissions and the terms placed on the proposed power plant by regulators.*”²⁰⁵ The terms the press release refers to required Alliant to rapidly increase their energy yield from renewable sources (10 % from corn husks and 25 % from wind before the planned opening in 2013, with a continued expansion of 1 % annually for the following 15 years) and to bear any additional carbon costs if the plant failed to meet future emission standards. In addition the plant was to be subject to periodical reviews from the IUB to evaluate possibilities for retrofitting the plant for carbon sequestration (CCS). The unsustainable option of coal was not denied access to the market, but permission was given with caveats that meant that the Iowa Utilities Board’s (IUB) approval in reality constituted a no. The abolishment of the project was therefore a direct result of the limitations the IUB defined, and could potentially be seen as a small step towards economic decision making that follows the principles of the EPG.²⁰⁶ The IUB’s vision for meeting Iowa’s electricity needs is to ramp up energy-efficiency and generate as much electricity as possible from clean, renewable sources, reducing reliance on dirtier ones. This vision, together with their ruling, includes several of the standards set for the EPG; through the demands placed on

would therefore seem unlikely that electricity demands would be on par with the projections for the nation as a whole (Des Moines Register 2008)

²⁰⁵ (Alliant Energy 2009)

²⁰⁶ Of the utilities board’s three members, two were appointed by Governor Culver and one by former Democratic governor, Tom Vilsack. That IUB appointments are made by the Governor’s office would indicate a stronger relationship to the government than the IUB mission statement indicates. It is therefore probable the decision in the case is perhaps an extension of the Democratic administration’s focus on renewables.

Alliant for expansion of renewable technologies, as well as requiring the plant to incorporate CCS when that technology is ripe, the IUB utilized the *precautionary planning principle*, as well as *strict environmental regulations* (the cost of a transition to CCS technology would likely represent a large toll on the company). Alliant would also be reliable for any costs that resulted from failure to meet *future* emission standards; a decision that supports both the precautionary planning principle as well as the *polluter pays principle*.

In sum, the Alliant case showed that it is possible to move growth in the right direction when the measures of the EPG are applied. However, the Alliant case is just one case, and more will have to come in order to make a comparable study to test this argument. Because it is unsure whether the coal case was a single occurrence or a sign of a new trend, it is important therefore to look at what needs to happen economically for development to continue in this direction?

4.4.2. **Economic Requirements for Continuation of the EPG Agenda**

According to Molotch *the job argument* is the most commonly used case to generate support for growth; corporations use it to expand their business, and job creation is also one of the ways through which the government maintains its legitimacy. The coal plant was estimated to generate 1500 jobs in Marshalltown and its surrounding area; a significant number in a state that had lost thousands of manufacturing jobs the previous few years.²⁰⁷ However, wind generated power is also estimated to produce several thousand jobs in Iowa over the next few years, thus the clean energy sector constitute a basis for growth that made it easier for the government to maintain legitimacy despite “losing” the projected jobs at the coal plant, while at the same time also retaining its authority as an alternative energy leader. Job security is, as noted, one of the absolute top concerns among people in Iowa, and it is crucial that the renewable energy industries (wind at present, but later also other clean technologies) manage to continue to generate (safe) jobs for people. Job creation will also be a prerequisite for these industries’ success in continuing to take over market shares.

Continued focus from the government is also of key importance; the Power Fund has been a generator for change and as Thomas Friedman noted, financial support from the government lessens the risk for investors who wish to pursue development of new

²⁰⁷ (Hancock 2010) (Iowa Work Force Development 2010)

technologies, and this basic research is crucial to make green innovations available to the market. In that regard a note must be made about Iowa as it is today and how it will be; Governor Chet Culver has been progressive and visionary on behalf of the renewable energy sector, and has undoubtedly been genuine in his wish to green the economy. In the debates leading up to the November 2010 gubernatorial election, Culver's republican opponent Terry Branstad announced that he has a different view on these issues; he expressed disapproval of the Power Fund aimed at spurring research on renewable energy technologies and stressed the opportunities to create jobs in traditional energy sectors. Pertaining to the ruling in the Marshalltown plant case Branstad reached the same conclusion as I did, saying that "the board's decision was effectively a rejection" and that he was "disappointed that a state agency rejected a coal-processing plant that could have created jobs in Marshalltown."^{208/209} Branstad was elected new governor in the election on November 2nd 2010, and based on his statements the continued development of the "green economy" in Iowa can perhaps be expected to become less progressive.

Chapter 5. Conclusion –

Prospects for Ecologically Prudent Economic Growth

The topic for this thesis was to assess the possibilities for arriving at an ecologically prudent economic growth, and if this would make it possible to replace the growth imperative that hallmarks the modern economy. Throughout the study it has become evident that the renewable energy sector is in fact becoming an important base for economic expansion, and the state of Iowa where I performed my case study is leading in this development. But has it made the economy greener? The answer is both yes and no. Iowa has quickly become a leader in wind generated power, today extracting as much as 20 % of the state's electricity needs from this source. Studies that have evaluated the effects of renewable energy sources has ranked wind at number one, as it is hardly making any impact on the environment where the turbines are situated, nor do the turbine generate any output that causes atmospheric damages. In that way the answer to the question is a yes, but as the study also showed there were several limitations to the supposedly green technologies; growing corn is causing widespread

²⁰⁸ See "*Beginning Movements towards an Ecologically Sound Economy in Iowa*" on page 62

²⁰⁹ (Beaumont 2010)

damages to the environment by endangering bird habitats and emitting large amounts of chemicals into the earth which again jeopardizes local water supplies, while also causing great damage as far away as the Gulf of Mexico. The damages thereby outweigh the positive effects of reduced GHG emissions, and the question of course becomes whether such “local” sacrifices have to be made for the sake of the global good. This is a returning dilemma in environmental ethics and has not easy answer; however it seems evident that the production of this kind of biofuels should be reduced to a minimum while second generation biofuels are being developed. This does not seem to affect the decision makers in Iowa however, and because of that I will also have to answer “no” to the initial question.

My study clearly established the presence of a growth machine in Iowa. In order to evaluate if and how it was undermining the possibility for an environmentally benign growth, I set five criteria for what an ecologically prudent economic growth would look like. The model is dubbed EPG (*Environmentally Prudent Economic Growth*), and its five principles are; the precautionary planning principle, demand for transparency in all parts of the production chain, to follow the “polluter pays” principle, to execute strict enforcement of environmental regulation, and at last to remove the strong connection between the government and the corporate world. In regards to wind energy the growth machine was indirectly working for the environment; the nature of the product made it fulfill the requirements. When it came to biofuels Molotch's warning about the unwillingness from growth coalitions to sacrifice economic gain for the sake of the environment became evident. Despite its obvious and severe negative effects, the growth machine is hard at work to maintain this industry; for instance the third largest contributor to this year's Republican gubernatorial campaign is also Iowa's largest producer of biofuels, and there is no reason to believe that the wind energy industry had acted any differently if it turned out to be as damaging as the biofuels industry. However, that wind is gathering strength as a viable part of Iowa's economic growth is after all positive; wind is a benign power source and in addition it is providing the government with a way to provide jobs for people, while it at the same time can retain legitimacy by providing care for the environment. Iowa also has great potential for expanding the wind industry, and thereby illustrates how growth can in itself be good. But being based on economic principles, there will also be economic requirements for the continuation of this sector; the “job-issue” is of great importance to people, and is a

requirement for the government to maintain its legitimacy, thus the success of the wind energy (and eventually other clean energy sources) will be dependent on their ability to expand. Thus, as it is now, the renewable energy sector will not remove the growth imperative. For that to happen, there has to be a major change in discourse; growth is the most widely shared goal in the world today, and the strong presence of the growth machine in Iowa gives no indication that it will seize to be so.

Based on a wide array of literature and the empirical evidence from Iowa, this study concludes that there is a clear and often harmful relationship between economic growth and the natural environment. Assessing three ways through which economic growth can prevent or heal the damages it has been causing, the study outlined three scenarios; limiting growth, piecemeal fixes to environmental problems, and by removing the connection between the economy and the environment. Seen in isolation, limiting growth will have a positive effect on the environment, however the uncertainty that economic downturn generates among people, might lead to other unwanted scenarios. As a solution this study suggests that the insecurity is based on people's fear of having access to a minimum of income and social welfare, thus *if* a limitation of economic growth should be used as a tool to mend ecological degradation, a change to the welfare system would have to be a prerequisite. Next, applying piecemeal fixes can be used to for instance reducing GHG emissions, and technology offers great ways to mend specific problems. But two problems are also connected to this solution; technology can not fix the overarching systemic failures that allows environmentally damaging practices to go on. As the case from Iowa shows, the technological solution that produced biofuels also turned out to be damaging, yet the system allows it to continue, nor does a solution to one problem help, if the underlying systems allow ten new ones to develop simultaneously. The second problem is that technological solutions make people feel relieved from responsibility; if there is a perception that a new technology will always come to "clean up our mess," then people have no incentive other than to carry on as usual, and this thesis proposes that there should be an increased focus on the damaging effects from consumption, in order for people to see their role in the bigger picture. The role of the producer is also important in that regard; and also in the third point; *removing the connection between the economy and the environment*. Here a focus on the environmental safety of products and production chains is crucial; the market for green products has great potential for being manipulated, and it is impossible for

consumers to make good choices unless producers are held accountable through enhanced producer responsibility (EPR). As a way to secure this control, I suggest that EPR is imposed through demand for transparency and regulations based on precautionary planning principles. The three options that I have laid all have weaknesses that could affect their effectiveness when growth mechanisms set out to prevent ecological damage. However, applied together they stand a great chance of resolving these problems. This will not happen by itself though, and will require strict enforcement from government agencies.

To develop an economically prudent growth within the modern economy it is thus evident that governmental involvement is a key factor for success. Throughout the study I have found no convincing evidence that an ecologically prudent economic growth can come about unless it is a result of political will. Several studies showed that voluntary environmental programs could work as a beginning for change, but all of these studies concluded that regulation was essential for coherent and long-term solutions. There is much evidence throughout my study that the economy and society is becoming greener, but because this segment is so new and prone to manipulation, the principles of the EPG should be a basis for its further development. Governmental support has been at the roots of the sweeping change that Iowa has gone through in implementing the renewable energy industry into their economy and though it is a small, and yet to be confirmed victory, the fact that the Utilities Board *in effect* could say no to the construction of a new coal plant in Marshalltown shows that the government might also regain some of the power that now resides with the growth coalition.

These examples display successful intervention of government, and such victories are important because they show that it is possible to save energy, save the economy and save the environment at the same time, and such successes are of key importance in a country with a stark distrust towards the government. A survey made in February 2010 revealed that 71 % of the American people did not think that Congress was doing a good job and with that starting point it is hard to convince people to make a collective effort. The failure of creating enthusiasm for environmental issues is addressed in a study by Marshall and Goldstein, where they conclude that the governmental institutions have failed to muster support from the government on environmental issues because of their lacking will to include the public. The study also claims that even when these institutions have asked for a public opinion, these outreaches have been mainly

mockery, and suggestions would be ignored if they did not fit the predetermined agenda. The study further suggests that if the government would genuinely involve the public in decision making processes, it could restore its legitimacy, and as a consequence make its power work better for the public and the environment, and be less tied to corporate interests. This way of making the community involved is known from India, and though the Indian and American cultures are very different, a new angle like the Indian is perhaps what industrialized countries need to in the long run become genuinely ecologically aware.



This study has answered the questions it set out to do, however there is an inexhaustible well of topics that need to be examined further. One of the topics that this study only touches upon is that of how to develop an environmental ethic. The study has shown that much can be done by applying technology and government regulation, however these measures do little to change the problems that lie at the roots of the environmental crisis. In order for these problems to be solved it is important that ecological awareness is incorporated into the economic system, and the only way that can be done is if the demand from ecologically aware and frustrated customers use their collective power to demand this change.

Bibliography

NORAM4508 - *Environment, Technology and History*. Oslo: Universitetet i Oslo, Det Humanistiske Fakultet - ILOS, June 18, 2008.

NORAM4500 *Metodekurs - Studieretning Nord-Amerika*. Oslo: Universitetet i Oslo, Det Humanistiske Fakultet - ILOS, August 28, 2007.

EAS4500 *Metodisk Innføring - Del 1 av 2. Europeiske og amerikanske studier*. Oslo: Universitetet i Oslo - Det Humanistiske Fakultet - ILOS, Juli 23, 2007.

Agnew, John A, and Jonathan M Smith. *American Space/American Place: Geographies of the Contemporary United States*. Edinburgh: Edinburgh University Press, 2002.

Alauddin, Mohammad. "University of Queensland." *Environmentalizing Economic Development*. January 2002. <http://espace.library.uq.edu.au/eserv/UQ:11064/DP299Jan02.pdf> (accessed November 5, 2010).

Aldo, Leopold. *A Sand County Almanac*. Oxford University Press, 1949.

Alliant Energy. *Alliant Energy*. 2010. <http://www.alliantenergy.com/index.htm> (accessed May 9, 2010).

—. "Plans cancelled for proposed Sutherland Generating Station Unit 4 hybrid power plant." *Alliant Energy - Recent Press Releases*. March 5, 2009. <http://www.alliantenergy.com/Newsroom/RecentPressReleases/023120?prvMonth=03&prvYear=2009&lastContentId=024992&cntYear=2010&runQuery=2> (accessed May 12, 2010).

Altenergy LLC. *Altenergy LLC*. 2010. <http://www.altenergyllc.com> (accessed May 14, 2010).

Bacevich, Andrew J. *The Limits of Power*. Holt, Henry & Company, Inc., 2009.

Baer, Nathaniel, interview by Ellen Elisabeth Tveiten-Grotbæk. *Iowa Environmental Council* (November 21, 2008).

Barbaro, Michael. "Wal-Mart Puts Some Muscle Behind Power-Sipping Bulbs." *New York Times*. January 2, 2007. www.nytimes.com/2007/01/02/business/02bulb.html?_r=1 (accessed October 10, 2010).

Barry, John. "Towards a model of green political economy: from ecological modernisation to economic security." *International Journal of Green Economics*, Vol. 1, Nos. 3/4 2007: 446-465.

BBC News. *The Kyoto Protocol*. February 16, 2005. <http://news.bbc.co.uk/2/hi/science/nature/4269921.stm> (accessed November 8, 2010).

Beaumont, Thomas. *Des Moines Register*. October 22, 2010. <http://www.desmoinesregister.com/apps/pbcs.dll/article?AID=201010220369> (accessed October 28, 2010).

Beck, Ulrich. *Risk Society. Towards a New Modernity*. London: Sage Publications Ltd., 1986, 1992.

Biofuels Interagency Working Group. *Growing America's Fuels*. Washington D.C.: The White House, 2010.

Blank, E, L Bird, and B Swezey. "U.S. Department of Energy - Energy Efficiency and Renewable Energy." *A Certificate-Based Approach to Marketing Green Power and Construction of New Wind Energy Facilities*. May 2002.

http://apps3.eere.energy.gov/greenpower/resources/pdfs/0602_newwind_cert.pdf (accessed October 19, 2010).

Borck, Jonathan, and Cary Coglianese. "Voluntary Environmental Programs: Assessing Their Effectiveness." *Annual Review of Environment*, 2009: 305-324.

Bowman, Chris. "The Sacramento Bee." *The Gold Rush Series - Part 4 The Legacy*. January 18, 1998. <http://www.calgoldrush.com/part4/04environment.html> (accessed November 7, 2010).

Bradley Jr., Robert L. "CATO Institute." *Policy Analysis*. August 27, 1997. <http://www.cato.org/pubs/pas/pa-280.html> (accessed October 19, 2010).

Brasher, Philip, and Donielle Eller. "Green Jobs Offer Limited Hope for Iowa." *Des Moines Register*. November 22, 2009. <http://pqasb.pqarchiver.com/desmoinesregister/access/1906349091.html?FMT=ABS&FMTS=ABS:FT&type=current&date=Nov+22%2C+2009&author=PHILIP+BRASHER%3BDONNELLE+ELLER&pub=Des+Moines+Register&edition=&startpage=A.1&desc=Green+jobs+offer+limited+hope+to+Iowa> (accessed April 27, 2010).

Brennan, Andrew, and Yeuk-Sze Lo. "Stanford Encyclopedia of Philosophy." *Environmental Ethics*. January 3, 2008. <http://stanford.edu/entries/ethics-environmental/> (accessed October 13, 2010).

Brock, W. A. "United Nations Public Administration Network." *Economic Growth and the Environment - A review of Theory and Empirics*. October 22, 2004. <http://unpan1.un.org/intradoc/groups/public/documents/APCITY/UNPAN021974.pdf> (accessed October 27, 2010).

Brock, William A, and M. Scott Taylor. "Economic Growth and the Environment - A Review of Theory and Empirics." *The National Bureau of Economic Research*. October 2004. <http://www.nber.org/papers/w10854> (accessed May 28, 2010).

—. "Economic Growth and the Environment - A Review of Theory and Empirics." *The National Bureau of Economic Research*. October 2004. <http://www.nber.org/papers/w10854> (accessed May 28, 2010).

Brock, William A, and Steven N Durlauf. "Adoption Curves and Social Interactions." *Yale University*. December 1, 2008. <http://dido.econ.yale.edu/conferences/2009/sum-09/econometrics/durlauf.pdf> (accessed May 20, 2010).

- Brown Flynn. *SustainGenuity*. November 13, 2009.
<http://brownflynn.wordpress.com/2009/11/13/the-smart-grid/> (accessed October 19, 2010).
- Brulle, Robert J. *Agency, Democracy and Nature*. Cambridge, Massachusetts: The MIT Press, 2000.
- Buell, Lawrence. *The Environmental Imagination; Thoreau, Nature Writing, and the Formation of American Culture*. 2. Boston: Harvard University Press, 1995.
- Collier, Paul. *The Bottom Billion - Why the Poorest Countries are Failing and What Can Be Done About It*. Oxford, New York: Oxford University Press, 2007.
- Culver, Chet. "Des Moines Register." *Keep Iowa on Road to Better Quality of Life*. October 17, 2010. <http://www.desmoinesregister.com/apps/pbcs.dll/article?AID=201010170319> (accessed October 28, 2010).
- Dahl, Robert A. *How Democratic is the American Constitution*. 2nd . New Haven & London: Yale University Press, 2003.
- Daly, Herman E. *Steady-state economics: the economics of biophysical equilibrium and moral*. W. H. Freeman, 1977.
- Dasgupta, Susmita, Benoit Laplante, Hua Wang, and David Wheeler. "Confronting the EKC." *Journal of Economic Perspectives* 16, no. 1 (2002): 147-168.
- de Bruyn, Sander M. *Economic Growth and the Environment*. Dordrecht: Kluwer Academic Publishers, 2000.
- Deconde, Alexander, and et.al., . *Encyclopedia of American Foreign Policy*. 2. Charles Scribner's Sons, 2001.
- Des Moines Register. "Des Moines Register.com." *More tightly regulate coal-ash disposal*. January 13, 2009.
<http://pqasb.pqarchiver.com/desmoinesregister/access/1690317741.html?FMT=ABS&FMTS=ABS:FT&type=current&date=Jan+13%2C+2009&author=&pub=Des+Moines+Register&edition=&startpage=A.8&desc=More+tightly+regulate+coal-ash+disposal> (accessed March 20, 2010).
- . "Des Moines Register.com." *Iowa can thrive without coal plant*. March 6, 2009. (accessed April 20, 2010).
- . "The Case Against the Coal Plant - Projections in load growth, population are unrealistic." *Des Moines Register*. April 15, 2008.
<http://pqasb.pqarchiver.com/desmoinesregister/access/1711507561.html?FMT=ABS&FMTS=ABS:FT&type=current&date=Apr+15%2C+2008&author=&pub=Des+Moines+Register&edition=&startpage=A.11&desc=Does+demand+require+new+plant%3F> (accessed April 15, 2010).
- . "The Case for the Plant: Biofuels, wind industries driving the thirst for power." *Des Moines Register*. Des Moines, Iowa: Des Moines Register, April 15, 2008.

- Dickinson, Tim. *Rolling Stone Magazine*. June 28, 2007.
http://www.rollingstone.com/politics/story/15148655/the_secret_campaign_of_president_bushs_administration_to_deny_global_warming (accessed March 31, 2010).
- Douhitt, Robin A. "All Business." *Consumption theories and consumers' assessments of subjective well-being*. 1992. <http://www.allbusiness.com/marketing/market-research/345989-1.html> (accessed October 19, 2010).
- Dryzec, John S. "Ecology and Discursive Democracy." In *Is Capitalism Sustainable*, by Martin ed. O'Connor, 176. New York: Guilford Press, 1994.
- Dryzec, John S, and et.al. *Green States and Social Movements*. Oxford University Press, 2003.
- . *Green States and Social Movements*. Oxford University Press, 2003.
- Dryzec, John S. *Politics of the Earth: Environmental Discourses*. New York: Oxford University Press, 1997.
- Environmental Protection Agency. "Inventory of U.S. Greenhouse Gas Emissions and Sinks." April 15, 2010. http://www.epa.gov/climatechange/emissions/downloads10/US-GHG-Inventory-2010_Report.pdf (accessed May 26, 2010).
- Esty, Daniel C, and Andrew S Winston. *Green to Gold*. Hoboken: John Wiley & Sons, Inc., 2009.
- Fainstein, Susan, Norman Fainstein, and P Jefferson Armistead. *San Francisco: Urban Transformation and the Local State*. New York: Longman, 1983.
- Fein, Helen. *Imperial Crime and Punishment*. University of Hawaii, 1977.
- "Foreign Trade Information System." *North American Free Trade Agreement Chapter 11*. September 11, 2010. <http://www.sice.oas.org/trade/nafta/chap-111.asp> (accessed November 8, 2010).
- Foucault, Michael. *The Archaeology of Knowledge*. Translated by Tavistock Publications Ltd. London: Routledge, 1969, 2002.
- Friedman, Benjamin M. *Moral Consequences of Economic Growth*. New York: Random House, Inc., 2005.
- Friedman, Thomas L. *Hot, Flat and Crowded*. 2nd. New York: Picador/Farrar, Strauss and Giroux, 2009.
- Gaines, Sanford E. "Envireform." *NAFTA Chapter 11 as a Challenge To Environmental Lawmaking*. November 11, 2000. <http://www.sice.oas.org/trade/nafta/chap-111.asp> (accessed November 8, 2010).
- Goldenberg, Suzanne. "The Guardian." *Barack Obama fails to rally support for energy bill*. June 29, 2010. <http://www.guardian.co.uk/business/2010/jun/29/barack-obama-energy-bill> (accessed November 12, 2010).

- Gordon, Robert J. "The Role of Wages in the Inflation Process." *Jstor*. 1988.
<http://www.jstor.org/stable/1818136> (accessed October 25, 2010).
- Governors' Wind Energy Coalition. *The Governors' Wind Energy Coalition*. 2010.
<http://www.governorswindenergycoalition.org/> (accessed May 29, 2010).
- Governors' Wind Energy Coalition, The. *The Governors' Wind Energy Coalition*. 2010.
<http://www.governorswindenergycoalition.org/> (accessed May 29, 2010).
- Greenpeace. *Greenpeace*. April 14, 2006. research.greenpeaceusa.org/?a=download&d=2203
 (accessed April 19, 2010).
- Grossman, Gene M., and Alan B. Krueger. "Jstor." *Economic Growth and the Environment*.
 February 1994. www.jstor.org/stable/2118443 (accessed September 20, 2010).
- Guha, Ramachandra. *How Much Should a Person Consume*. Berkeley: University of California Press, 2006.
- Guha, Ramachandra. "Lewis Mumford - the Forgotten American Environmentalist." In *Minding Nature - the Philosophers of Ecology*, by David - ed. Macauley, 209-227. New York: Guilford Press, 1996.
- Hajer, Maarten A. *The Politics of Environmental Discourse*. Oxford: Clarendon Press, 1995.
- Hamilton, Clive. *Growth Fetish*. London: Pluto Press, 2003.
- Hancock, Jason. "The Iowa Independent." *Branstad's Economic Claims Questioned by Experts*.
 September 21, 2010. <http://iowaindependent.com/43637/branstads-economic-claims-questioned-by-experts> (accessed November 12, 2010).
- Harvard University. *Harvard University - Belfer Center*. 2010.
belfercenter.ksg.harvard.edu/1305/helen_fein.html (accessed October 14, 2010).
- Hawken, Paul, Armory B Lovins, and L. Hunter Lovins. *Natural Capitalism - The Next Industrial Revolution*. London: Earthscan Publications Ltd., 1999.
- Herberg, William. *Protestant, Catholic, Jew: an Essay in American religious sociology*. Chicago : University of Chicago Press, 1955, 1983.
- . *Protestant, Catholic, Jew: an Essay in American religious sociology*. . Chicago: Chicago University Press, 1955, 1983.
- Herriges, Joseph A, Silvia Secchi, and Bruce A Babcock. "Living with Hogs in Iowa: The Impact of Livestock Facilities on Rural Residential Property Values." August 2003.
<http://www.ncifap.org/bin/y/n/factsheetRuralPropertyValues.pdf> (accessed May 9, 2010).
- Hirsh, Michael. "American in the World." In *Perspectives on American Politics*, by William Lasser, 389-396. Boston, New York: Houghton Mifflin Company, 2002.

Hoover's Inc. *Hog and Pig Farming*. © 2010. http://www.hoovers.com/hog-and-pig-farming/--ID__352--/free-ind-fr-profile-basic.xhtml (accessed April 9, 2010).

House, M.L. "TV Fanatic." December 26, 2008. <http://www.tvfanatic.com/> (accessed March 8, 2010).

Howarth, R. B. *Ecological Economics - The Transdisciplinary Journal of the International Society for Ecological Economics (ISEE)*. Vers. Volume 69, Issue 3. January 15, 2010. (accessed 09 20, 2010).

Husserl, Edmund. *The Crisis of the European Sciences*. Evanston, Illinois: Northwestern iPress, 1954/1962.

International Energy Agency. "Key World Energy Statistics." *Energy and Resources*. September 7, 2009. http://www.iea.org/textbase/nppdf/free/2009/key_stats_2009.pdf (accessed May 22, 2010).

Iowa Business Council. *IBC Mission*. 2007.
<http://www.iowabusinesscouncil.com/content/mission> (accessed April 19, 2010).

Iowa Office for Energy Independence. "2010 Energy Independence Plan." December 15, 2009. <http://www.energy.iowa.gov/OEI/docs/2010WebEnergyIndependencePlan.pdf> (accessed May 6, 2010).

Iowa Office of Energy Independence. "Iowa Clean Cities Coalition." *Ethanol and the Environment*. May 11, 2010.
<http://www.iowacleancities.org/biofuels/ethanol/production.html> (accessed November 4, 2010).

—. "Iowa Office of Energy Independence." *ISU Solar Energy Project*. August 11, 2010.
<http://www.energy.iowa.gov/files/amesprojectshow/index.html> (accessed November 8, 2010).

Iowa Policy Project. "Iowa Jobs Olunge at end of 2009." *Iowa Policy Project*. January 22, 2010.
<http://www.iowapolicyproject.org/IowaJobWatch0110.html> (accessed November 13, 2010).

Iowa Pork Producers Association. *Iowa Pork Producers Association*. 2007.
<http://www.iowapork.org/Newsroom/PorkFacts/tabid/704/Default.aspx> (accessed May 9, 2010).

Iowa Public Television. "Layoffs Hit John Deere." *Iowa Public Television*. June 5, 2009.
<http://www.iptv.org/mtom/story.cfm/lead/1236> (accessed October 25, 2010).

Iowa Work Force Development. *Iowa Unemployment Rate Unchanged*. October 22, 2010.
<http://www.iowaworkforce.org/news/xcnewsplus.asp?articleid=81&cmd=view> (accessed October 26, 2010).

—. "Iowa Work Force Development." *Unemployment Rates*. November 12, 2010.
<http://iwin.iwd.state.ia.us/iowa/OlmisZine> (accessed November 12, 2010).

Iowa Workforce Development. "Iowa Workforce Development." *Iowa New Energy*. 2010. <http://www.iowaworkforce.org/newenergy/> (accessed April 20, 2010).

Jackson, Wes. *New Roots for Agriculture*. Lincoln: U of Nebraska Press, 1985.

Jacobs, Jane. *Cities and the Wealth of Nations*. New York: Random House, 1985.

Jacobson, Mark Z. "Environmental Fluid Mechanics and Hydrology ." *Stanford University*. December 1, 2008. <http://www.stanford.edu/group/efmh/jacobson/PDF%20files/ReviewSolGW09.pdf> (accessed May 11, 2010).

Jeffries, Mike J. *Biodiversity and Conservation*. New York: Routledge, 1997/2006.

Jianto, Hu. "New York Times." *Transcript of speech on climate change by President Hu Jintao of China to the United Nations General Assembly*. September 22, 2009. <http://www.nytimes.com/2009/09/23/world/asia/23hu.text.html?ref=environment> (accessed November 7, 2010).

John Deere. John Deere loses jobs. www.iptv.org/mtom/story.cfm/lead/1236.

Johnston, James D. *Driving America - Your Car, Your Government, Your Choice*. Washington D.C.: AEI Press, 1997.

Jørgensen, Marianne Winther, and Louise Phillips. *Diskursanalyse*. Roskilde: Roskilde Universitetsforlag, 1999.

Kaufman, Leslie. "In Kansas, Climate Skeptics Embrace Cleaner Energy." *New York Times*. October 18, 2010. <http://www.nytimes.com/2010/10/19/science/earth/19fossil.html?scp=1&sq=climate%20kansas&st=cse> (accessed October 19, 2010).

Kernochan, R. "California State University Northridge." *Framing and Framing Theory*. August 8, 2004. www.csun.edu/~rk33883/Framing%20Theory%20Lecture%20Ubertopic.htm (accessed September 21, 2010).

Laws, Lynn, interview by Ellen Elisabeth Tveiten-Grotbæk. *Iowa Environmental Council* (November 24, 2008).

Leiss, William, Stephen Kline, and Jackie Botterill. *Social communication in advertising: consumption in the mediated marketplace*. Ottawa: Taylor & Francis Group, 2005.

Lipset, Seymour Martin. *American Exceptionalism* . New York: W.W. Norton & Co, 1996.

Locke, John. *The Second Treatise of Government*. Barnes and Noble Books, 2004/1690.

Logan, John R, and Harvey L Molotch. *Urban Fortunes*. Berkely: University of California Press, 2007.

- Lopez, R. "The environment as a factor of production: the effects of economic growth and trade liberalization." *Journal of economy and environmental management* 27 (2) (1994): 163-184.
- Luccarelli, Mark. *Lewis Mumford and the Ecological Region - The Politics of Planning*. New York: The Guilford Press, 1995.
- Lunde, Leiv, Henrik Thune, and et. al. *National Interest - Foreign Policy in a Globalized World*. Oslo: Norwegian Ministry of Foreign Affairs, 2008.
- Malhotra, Kailash C., and et.al. "Cultural and Ecological Dimensions of Sacred Groves in India." *Center for Ecological Sciences, Indian Institute of Sciences*. June 2001.
<http://www.ces.iisc.ernet.in/> (accessed September 23, 2010).
- Maria, Magdalena R.V. Sta., and Mark Z Jacobson. "Investigating the Effect of Large Wind Farms on Energy in the Atmosphere." September 30, 2009. <http://www.mdpi.com/1996-1073/2/4/816/pdf> (accessed May 11, 2010).
- Marshall, Brent K, and Warren S Goldstein. "Organization and Environment." *Managing the Environmental Legitimation Crisis*. 2006.
<http://oae.sagepub.com/cgi/content/abstract/19/2/214> (accessed April 15, 2009).
- Marx, Leo. *The Machine in the Garden*. Oxford: Oxford University Press, 1964,2000.
- Mason, Roger S. *Conspicuous Consumption - A Study of Exceptional Consumer Behavior*. Gover, 1981.
- Meadows, Donatella H, Dennis L Meadows, and Jørgen Randers. *Limits to Growth - A Report for the Club of Rome*. Universe Books, 1972.
- Meat Fuels America. "Economic Impact of Pork Industry." *Meat Fuels America*. June 2010.
<http://www.meatfuelsamerica.com/ReportViewer.aspx> (accessed October 25, 2010).
- Meckler, Mark. *The Tea Party Patriots*. 2010. <http://teapartypatriots.ning.com/> (accessed April 4, 2010).
- Midwest Energy Efficiency Alliance. *Iowa Policy Info*. 2010.
<http://www.mwalliance.org/policy/iowa-policy-info> (accessed November 2, 2010).
- Miller, Daniel et. al. *Shopping, Place and Identity*. London: Routledge, 1998.
- Minteer, Ben A. *The Landscape of Reform*. Cambridge, Massachusetts: The MIT Press, 2006.
- Moen, Ole O. *Annerledeslandet i en Ny Tid*. Oslo: Forlaget Historie og Kultur, 2009.
- Molotch, Harvey. "JStor." *The City as a Growth Machine*. September No. 2, 1976.
<http://www.jstor.org/pss/2777096> (accessed March 10, 2007).
- . *JStor*. September No. 2, 1976. <http://www.jstor.org/pss/2777096> (accessed March 10, 2007).

Moncur, Michael. *The Quotations Page - Michael Moncur*. 1994-2007.
<http://www.quotationspage.com/subjects/America/> (accessed March 17, 2010).

Morgenstern, Richard D., William A. Pizer, and eds. *Reality Check*. Washington D.C.: Resources for the Future, 2006.

NAFTA Secretariat. *NAFTA Secretariat*. April 3, 2009. <http://www.nafta-sec-alena.org/en/view.aspx?conID=775#When%20was%20the%20NAFTA%20signed> (accessed March 31, 2010).

National Association of Realtors. "Field Guide to Wind Farms and their Effect on Property Values." September 2009. <http://www.realtor.org/library/library/fg509> (accessed May 13, 2010).

National Institute of Money in Politics. "Follow the Money." *Iowa 2010*. 2010.
http://www.followthemoney.org/database/StateGlance/state_contributors.phtml?s=IA&y=2010 (accessed November 4, 2010).

National Institute of Money in State Politics. *Iowa 2006 Candidates CULVER, CHET & JUDGE, PATTY*. 2006.
<http://www.followthemoney.org/database/StateGlance/candidate.phtml?c=80097#TopofPage> (accessed May 14, 2010).

National Institute on Money in State Politics. "Candidates Culver, Chet and Judge Patty." *Follow the Money*. 2010.
<http://www.followthemoney.org/database/StateGlance/candidate.phtml?c=116331> (accessed November 14, 2010).

—. "Contributor Bruce Rastetter." *National Institute on Money in State Politics*. 2010.
<http://www.followthemoney.org/database/StateGlance/contributor.phtml?d=1898196109> (accessed November 14, 2010).

National Journal Group Inc. *Energy and Environment*. 2010.
<http://energytopic.nationaljournal.com/> (accessed March-November 2010).

New York Times. "New York Times." *China Bans Free Plastic Bags*. January 9, 2008.
www.nytimes.com/.../09iht-plastic.1.9097939.html (accessed November 7, 2010).

Noble, David W. *Death of a Nation. American Culture and the End of Exceptionalism*. University of Minnesota Press, 2002.

Nordhaus, Ted, and Michael Schellenberger. *Yale Environment 360*. March 29, 2010.
<http://e360.yale.edu/content/feature.msp?id=2257> (accessed May 6, 2010).

Nye, Jr. Joseph S. *Soft Power*. New York: BBS Public Affairs, 2004.

Obama, Barack. "New York Times." *Obama's Speech on Climate Change*. September 22, 2009.
<http://www.nytimes.com/2009/09/23/us/politics/23obama.text.html?ref=environment> (accessed November 7, 2010).

Osterberg, David, and Theresa Galluzzo. "Think Wind Power, Think 'Iowa'." March 2010.
<http://www.iowapolicyproject.org/2010docs/100303-IPP-wind.pdf> (accessed May 11, 2010).

—. "Think Wind Power, Think Iowa." *Iowa Policy Project*. March 3, 2010.
<http://www.iowapolicyproject.org/2010docs/100303-IPP-wind.pdf> (accessed November 13, 2010).

Paine, Thomas. *Common Sense*. Forgotten Books, Publ. 1942, 1776.

Pearce, David William, and Edward Barbier. *Blueprint for a Sustainable Economy*. Earthscan, 2000.

Peterson, Thomas D, Robert B McKinstry Jr., and John C Dernbach. "Developing a Comprehensive Approach to Climate Change Policy in the United States that Fully Intergrates Levels of Government and Economic Sectors." *Virginia Environmental Law Journal* 26 (2008): 227-269.

Pilkington, Ed. *The Guardian*. January 26, 2007.
<http://www.guardian.co.uk/environment/2007/jan/26/energy.usnews> (accessed May 6, 2010).

Piller, Dan. "Offshore Wind Decision Crucial for Iowa." *Des Moines Register*. April 27, 2010.
<http://blogs.desmoinesregister.com/dmr/index.php/2010/04/27/offshore-wind-decision-crucial-for-iowa/> (accessed April 27, 2010).

Pilzer, Paul Zane. *God Wants You to be Rich*. New York: Fireside, 1997.

—. *Unlimited Wealth*. Crown Publishers, 1994.

Powell, Jason L, and Harry R. Moody. "ICAAP - International Consortium for Advanced Academic Publications." *The Challenge of Modernity: Habermas and Critical Theory*. 2003.
http://theoryandscience.icaap.org/content/vol4.1/01_powell.html (accessed October 11, 2010).

Pulliam, Jason, and Gunnar Olson. "Des Moines Register." *Des Moines metro area weighs rules for turbines*. July 21, 2009.
<http://pqasb.pqarchiver.com/desmoinesregister/access/1798373461.html?FMT=ABS&date=Jul+21%2C+2009> (accessed April 20, 2010).

Rasmussen Reports . *Energy Update*. March 17, 2010.
http://www.rasmussenreports.com/public_content/politics/current_events/environment_energy/energy_update (accessed April 9, 2010).

Rasmussen Reports TM. *Energy Update*. Oktober 10, 2010.
http://www.rasmussenreports.com/public_content/politics/current_events/environment_energy/energy_update (accessed Oktober 11, 2010).

Register Editorial Page, Staff. "OK MidAmerican's wind plan?" *Des Moines Register*. August 6, 2009.

<http://pqasb.pqarchiver.com/desmoinesregister/access/1821171911.html?FMT=ABS&FMTS=ABS:FT&type=current&date=Aug+6%2C+2009&author=&pub=Des+Moines+Register&desc=OK+MidAmerican%27s+wind+plan%3F> (accessed April 2010, 2010).

Renewable Energy Policy Network for the 21st Century. *Renewables - Global Status Report 2009 Update*. May 13, 2009.

http://www.unep.fr/shared/docs/publications/RE_GSR_2009_Update.pdf (accessed November 2, 2010).

Repstad, Pål. *Mellom Nærhet og Distanse - Kvalitative Metoder i Samfunnsfag*. 4. reviderte utgave. Oslo: Universitetsforlaget, 2007.

Richmond, Amy, and Eric Zencey. "Environmental Kuznets Curve." *Encyclopedia of the Earth*. September 20, 2006. http://www.eoearth.org/article/Environmental_kuznets_curve (accessed April 21, 2010).

Rickerson, Wilson, Florian Bennhold, and James Brandbury. "wind-works.org." *Feed-In Tariffs and Renewable Energy in the USA. A Policy Update*. May 2008. http://www.wind-works.org/FeedLaws/USA/Feed-in_Tariffs_and_Renewable_Energy_in_the_USA_-_a_Policy_Update.pdf (accessed November 2, 2010).

Rosmann, Ron. "Sustainable Agriculture Takes Roots Among Family Farms in Iowa." In *Eco-Pioneers*, by Steve Lerner and Jonathan Lash, 287-298. MIT Press, 1998.

Rothman, D. S. "Environmental Kuznets Curves - Real Progress or Passing the Buck?" *Ecological Economics*, February 1998: 177-194.

Runge, C. Ford. "Yale Environment 360." *The Case Against Biofuels*. March 11, 2010. <http://e360.yale.edu/content/feature.msp?id=2251> (accessed May 5, 2010).

Rutledge, Ian. *Addicted to Oil - America's Relentless Drive for Energy Security*. London - New York: I.B. Tauris, 2008.

Sachs, Jeffrey D. *Common Wealth*. New York: Penguin Press, 2008.

Safire, William. *Safire's Political Dictionary*. 3rd. New York: Random House, 2003.

Sayre, Kenneth (Ed.). "Unearthed - The Economic Roots of our Environmental Crisis." *Energy, Environment, Economics and Ethics*. 2007. <http://www.nd.edu/~philinst/energy.html> (accessed May 26, 2010).

Scheufele, Dietram A. "University of Pennsylvania." *Annenberg School for Communication*. April 8, 1999. <http://www.asc.upenn.edu/usr/ogandy/C45405%20resources/Scheufele%20framing%20as%20effects.pdf> (accessed April 23, 2010).

Singer, Peter. *One World - The Ethics of Globalization*. 2nd edition. New Haven and London: Yale University Press, 2002.

Slotkin, Richard. *Regeneration Through Violence*. Norman: University of Oklahoma Press, 1973.

- Smith, Adam. *Wealth of Nations*. BN Publishing, 1776 (2007).
- Smithson, John. "American Exceptionalism." *United States Politics*, December 10, 2009: 23.
- Solow, Robert M. "A Contribution to the Theory of Economic Growth." *JStor*. February 1956. <http://www.jstor.org/pss/1884513> (accessed May 25, 2010).
- Speth, James Gustave. *The Bridge at the End of the World*. New Haven & London: Yale University Press, 2008.
- Stanway, David. "The Guardian." *China Bans Plastic Bags in Fight Against Pollution*. January 9, 2008. www.guardian.co.uk/world/2008/jan/09/china.plasticbags (accessed November 7, 2010).
- Swenson, Dave. "The Economic Impact of Fruit and Vegetable Production in Southwest Iowa." *Iowa State University*. January 2010. http://www.leopold.iastate.edu/research/marketing_files/swiowa.pdf (accessed October 25, 2010).
- Söderbaum, Peter. "Values, Markets, and Environmental Policy - An Actor Network Approach." *Journal of Economic Issues* XXVII, no. No 2 (June 1993): 387-408.
- The Economist. "What's Gone Wrong in Washington." *The Economist*, February 2010: 20-21.
- The Philosophic Institute. "CHAPTER 10 HISTORY AND THEORY OF ECONOMIC GROWTH." *University of Notre Dame*. 2007. <http://www.nd.edu/~philinst/pdfs/CHAPTER10-2009.pdf> (accessed May 26, 2010).
- The White House. "Copenhagen Climate Council." *Obama's Address to the COP15*. December 18, 2009. <http://www.copenhagenclimatecouncil.com/get-informed/news/cop15-remarks-of-president-barack-obama.html> (accessed November 12, 2010).
- . *The White House*. January 21, 2009. <http://www.whitehouse.gov/blog/inaugural-address/> (accessed March 31st, 2010).
- Thoreau, Henry David. *Life Without Principle*. Forgotten Books, 1863 - reprinted 2008.
- Times-Republican. *2008 Top story: Power plant gains IUB approval*. January 1, 2009. <http://www.timesrepublican.com/page/content.detail/id/513468.html> (accessed May 12, 2010).
- TPI Composites. *TPI Composites*. 2010. <http://www.tpicomposites.com/> (accessed April 22, 2010).
- Trabish, Herman K. *Greentech Media*. April 29, 2010. <http://www.greentechmedia.com/articles/read/iowa-the-new-frontier-for-wind/> (accessed May 6, 2010).

Tyrell, Ian. "American Exceptionalism in an Age of International History." *JStor* -. American Historical Association. October 1991. www.jstor.org/stable/2164993 (accessed February 12, 2010).

—. "American Exceptionalism in the Age of International History." *The American Historical Review*, October 1991, www.jstor.org/stable/2164993 ed.: 1031-1055.

U.S. Census Bureau. "U.S. Census Bureau, Population Division." *Interim Projections of the Total Population for the United States and States: April 1, 2000 to July 1, 2030*. April 21, 2005. <http://www.census.gov/population/projections/SummaryTabA1.pdf> (accessed November 2, 2010).

U.S. Department of Energy. "U.S. Department of Energy." *Energy Timeline*. 2010. <http://www.energy.gov/about/timeline1971-1980.htm> (accessed May 29, 2010).

—. "U.S. Department of Energy." *Energy Timeline*. <http://www.energy.gov/about/timeline1971-1980.htm> (accessed May 29, 2010).

U.S. Department of State Dispatch. *Hein Online*. August 15, 1996. <http://heinonline.org/HOL/LandingPage?collection=journals&handle=hein.journals/dsptch16&div=231&id=&page=> (accessed March 23, 2010).

U.S. Energy Information Administration. "U.S. Energy Information Administration." *Annual Energy Outlook 2010 with Projections to 2035*. May 11, 2010. <http://www.eia.doe.gov/oiaf/aeo/demand.html> (accessed October 17, 2010).

U.S. Environmental Protection Agency. *Recent Climate Change - Atmospheric Changes*. November 6, 2009. <http://www.epa.gov/climatechange/science/recentac.html#radiative> (accessed May 11, 2010).

Uchitelle, Louis. *New York Times*. April 19, 2010. <http://www.nytimes.com/2010/04/22/business/energy-environment/22PLANT.html> (accessed April 22, 2010).

United Nation's Development Program. "Human Development Report." *Changing today's consumption patterns - for tomorrow's human development*. June 3, 2008. http://hdr.undp.org/en/media/hdr_1998_en_overview.pdf (accessed April 1, 2010).

USDA Economic Research Service. "Major uses of land, by class of ownership." *U.S. Department of Agriculture*. 2002. ers.usda.gov/publications/EIB14/eib14.pdf (accessed September 28, 2010).

Veblen, Thorstein. *The Theory of the Leisure Class*. New York: Cosimo Inc., 2007 (1899).

Verma, Avindra Kumar. *Political Science*. New Dehli: V.K. India Enterprises, 2009.

Washington Post-ABC News. *Washington Post-ABC News poll*. February 10, 2010. http://www.washingtonpost.com/wp-srv/politics/polls/postpoll_021010.html (accessed April 5, 2010).

Waters, Malcolm. *Globalization*. 2nd edition. London and New York: Routledge - Taylor and Francis Group, 1995,2001.

Weber, Max. *The Protestant Ethic and the Spirit of Capitalism*. Translated by Talcott Parsons. New York: Charles Scribner's Sons, 1905, 1958.

Wise, Gene. "Paradigm Dramas" in *American Studies*. Vol 31 No 3, 1979.
<http://www.jstor.org/pss/2712378> (accessed April 5, 2010).

Wisner, Robert. "Iowa State University." *Impacts of Iowa's Rapid Expansion of Corn Based Ethanol*. October 2006. <http://www.extension.iastate.edu/ag/WisnerPresent.indd.pdf>
(accessed November 4, 2010).